Vol. XII. NOVEMBER, 1876. No. 11.

THE AMERICAN BEE JOURNAL

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AMERICAN BEE JOURNAL
AMERICAN POULTRY JOURNAL
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R. Z. MASON,
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American Bee Journal.

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AMERICAN BEE JOURNAL,

DEVOTED EXCLUSIVELY TO BEE CULTURE.

VOL. XII. CHICAGO, NOVEMBER, 1876. No. 11.

Our Exchanges.

Boil it down! Boil it down!
Give us the new and useful points—
The good—and that's enough!
Boil it down!

BRITISH BEE JOURNAL.

At the annual show of the British Bee-Keepers' Association, Sept. 15-18, we notice that friend Abbott, editor of the *British Bee Journal*, took many prizes for his ingenious inventions—among which we might name: movable comb hives, bee feeders, sectional boxes, and his extractor, called the "Little Wonder."

Mr. John Hunter, exhibited the following American articles: Quinby's smoker; Novice's metal corners, bee-quilt and feeder; Isham's boxes, etc.

George Neighbour & Sons exhibited quite largely and carried off several prizes.

FOUL BROOD.

"If a hive should be found to contain foul brood, which may be known by the ragged, sunken, and pierced condition of the sealed (?) cells, and by the fœtid nature of their contents, it will be unwise to attempt a cure, for the combs will be worthless, except for the honey they may contain, and the bees being few and old, will not be worth any labor bestowed on their preservation, and it will therefore be good policy (to prevent the disease extending) to give them 'a sharp shift,' either with sulphur fumes or drowning, for where the dire necessity arises, a sudden death is the more merciful."

BEE FOOD.

"The cheapest and best form of bee-food with which we are acquainted is composed of five pounds of best loaf sugar and two pints of water, to be boiled together, a wine-glass of vinegar and a pinch of salt should then be added, and the whole boiled for a few minutes."

LIGURIAN BEES.

It will be remembered that on page 241 (September number), while commenting upon an article from the London *Cottage Gardner*, condemning Italian bees, we asked friend Abbott what proportion of British bee-keepers preferred the black to the Italian bees? His answer is as follows:

"The barefaced libel contained in the article referred to is about on a par with the insane assertions made some time since by a positivist named Heddon at the Michigan Bee-Keepers' Association (December, 1875) denouncing bee-keeping as a snare and a delusion, kept up by editors of bee journals, and hive and bee-furniture makers, for their own special profit."

"The man of many assertions who foments trade in England against Ligurian bees, is also deadly opposed to bar-frame hives, and indeed to everything that savors of improved bee-culture honestly carried on. He teaches people how to fill 'shoddy' supers with the contents of the hives called after his own name, than which no others in his opinion ought to exist, and from his dogged persistence in his declarations he undoubtedly believes he is right; and we are content to allow him to enjoy his opinion, and to lead as many others as choose to foliow him. The tide, however, sets in another direction, and improved hives, improved methods of managements, and improved bees, are the order of the day; and for results we will point to the glories of the late Alexandra Show, at the piles of supers, tier upon tier, that dazzled the eye with their beauty, at the magnificent exhibits of the cottagers who, having deserted the 'Pettigrew' system, have come into light and celebrity by aid of the bar-frame principle and the Ligurian bee. Can anything in the annals of the skep compare with the results obtained by the bar-frame principle and Ligurian and hybrid bees in the hands of Cottager Walton, as exhibited at our late show? Has anything in the way of supers ever been produced from skeps which can compare honestly with the magnificent exhibits of Mr. Cowan, in 1874, 1875 and again this year? The boast of the old system is, that sometimes swarms will rise to a hundred pounds weight, which system necessitates the breaking up of the stocks to obtain the honey; but the glory of the bar-frame principle is that a hundred pounds can be taken in supers, forty to fifty or more pounds extracted from the stock-hive, and no harm done."

"Undoubtedly the old skep and its advocates have done the country immense service with the black bee, and in the hands of those who are content 'to drive slowly,' they will, doubtless, retain a place; but as a matter-of-fact, the bar-frame hive and the Ligurians are driving them out of use, and presently black bees, as a distinct variety, will have ceased to exist. We are perfectly sick of the subject; there will always be some who will rail against what interferes with their own pet ideas, and there will be those who will not see advantages which proclaim themselves trumpet-tongued throughout the world; others that having made an assertion, having said a thing, will spend the remainder of their life in sticking to it, be it ever so wrong; and after some

experience with such, we think wise men will *let them alone.*"

BEE-KEEPERS' MAGAZINE.

The Rev. J. W. Shearer gives an excellent article on Wintering, in which he gives the following remarks on

Uniting Weak Stocks.

"It is much better to unite all weak stocks in the fall and keep the extra comb in a good dry place to be given in the spring to build up swarms. Bees do not unite so readily after the honey harvest is over as they do in the summer and during swarming time. A little preparation is necessary. Proceed as follows: Select the two hives to be united and take away from each half the combs leaving those that are the largest and best filled with honey and pollen. If these are lacking one may be taken from some old hive which is able to spare it. These two hives will have just the amount of comb necessary for the new. The next day proceed as follows: Preserve the youngest queen for the united colony. To do this find the oldest queen and cage her, to be used should accident befall the other. Then smoke both hives well until they fill themselves with honey. This serves to give them the same scent. They may then be treated in two ways. First, take the combs with adhering bees and place them alternately into the new hive. Second, shake the bees from all the combs in front of the new hive and let them enter after placing the comb alternately in the hive.

The latter is perhaps the best plan. Then close up the hive so soon as the bees have entered, giving good ventilation. It will not do to open them at once for many of the old bees would return to their old stands and be lost. To prevent this proceed as follows: Keep the new hive closed until about sunset. Close it the next morning and open again at sunset. On the second morning open again and give the hive a few sharp raps. The bees will then take their bearing and return all right to the new hive. It is sometimes a great assistance in uniting, to first sprinkle both hives with sweetened water, into which a few drops of some perfume has been added."

Feeding.

"Where the winter harvest cannot be relied on the bee-master should feed all the stocks which have not a supply, with good sugar syrup made of the consistency of honey. It should be fed as rapidly as possible to prevent the use of it to too great an extent for making wax and raising of brood. It is not well to encourage the laying of eggs after the last of September when winter food should be given. Up to this time they should be stimulated if no honey is obtained, by regularly feeding a very little syrup at a time so as to have a good supply of young bees for wintering. The syrup should be given about sunset to prevent fighting, and they will take it much more rapidly especially if the evenings are cool if it be given whilst a little warm. It should be fed in the cap or top box of the hive in some good feeder. Perhaps the simplest is an inverted fruit can with a piece of thin cloth tied over the top. Two or three of these may be given, a hive at a time. In a very few evenings, if fed properly, they will receive sufficient. A teaspoonful of cream of tartar added to a quart of syrup will assist in preserving it from crystalization. It should be first dissolved in a little warm water before pouring into the syrup."

Wintering out of Doors.

"About the first of November, when cold weather seems about to set in, bees should be fully prepared for winter. If wintered in the open air the following are important points to be attended to. Each hive should in some way be prepared against sudden reverses of heat and cold. The entrances should be towards the south or east with good protection on the other sides. A good evergreen hedge will check the force of winds and prevent disturbance. The hives should sit firmly on legs or benches a little way above the ground to prevent the combs from molding. If large hives are used, division boards on either side closing up to about nine frames of comb will leave an air chamber on each side of the bees. This with a similar protection in front will greatly aid in avoiding sudden changes. It is very important that the front end or entrance should be properly closed. Much the best plan is to have a portico enclosed all around for the aligting board. Into this fix an outer door having *at one end* a small exit for the bees, so that mice cannot enter, and at the opposite side from the entrance into the hive so that no sunshine will fall in the entrance and tempt the bees out when it is too cold to fly. Some fine day in winter this outer door is removed so that the sun can shine full into the hive when the bees will fly out, void their fæces and return in better condition to their hives which are again to be closed."

GLEANINGS IN BEE-CULTURE.

This season Novice has decided to winter his bees on their summer stands. He says:

"Our bees are to be wintered on their summer stands; not a bee is to be bothered by being lugged about, and if they die, it will not be of home-sickness. The greater part will have only the chaff cushions pressed closely down on the frames; some will have chaff on all four sides, some on three sides, and some on only one side. A dozen or more, will be entirely surrounded with chaff, bottom board and all." "Painting bottom boards we find to answer quite well for preventing their being covered with wax and propolis. Some that have been in use two years, are almost as nice and clean as when first given the bees."

Giving Bees Bits of Comb.

"We have tried giving bees bits of comb in front of the hives, and find that if the distance is so great they are compelled to take wing, they pack the comb on their pollen baskets; if so near the hive that they can carry it on foot, they bite off bits as before, and then stick them together in a lump, holding this lump as it appears to us, under the chin, with the aid of the tongue. With this lump of wax, when the bee has about as much as it can carry, it starts into the hive hurriedly, and goes directly to where comb building is in progress, or may be to where cracks and crevices are being

stopped by propolis, for these bits of wax seem to be used for either purpose indiscriminately. When packing it in their pollen baskets, they use a kind of slight-of-hand movement, that is quite puzzling until one has studied it out. A bit of wax is pulled from the comb as before, and is then stuck on the side of one of the middle feet from which it is 'slaped' on to the rest in the pollen basket with a movement so quick that the eye is unable to follow it, and it is only by observing the finishing pats of this limb, that we are able to divine how the wax got to the pollen basket at all."

Cases for Shipping Comb Honey.

"The cases are made of lumber purchased for $11.00 per M. It is planed down to about ⅞, and then boxes made to hold 40 or 50 combs just as they hang in the hive, with a pair of handles at each end to carry them by. The handles are simply a prolongation of the sides of the box, whittled round and smooth, so as to be easy for lifting so great a weight—200 to 400 lbs. To keep the combs apart, the rabbets along the sides are notched just right to admit the projecting ends of the top bar, and a three-cornered strip notched in a similar way, is nailed along the bottom. When the cover is screwed on, every frame is secure in its place. He receives the same price for comb-honey put up in this way, as for that in the sections—20 cts.—but receives the frames and cases back."

Chaff Cushions.

"Our house apiary is supplied with chaff cushions, and we are rejoicing to find them answering the purpose so well. These cushions are made of two pieces of Indian head muslin, 17x21, joined by a band 6 in. wide, so that we have a box of cloth as it were; we prefer to use the band, as it leaves the ends and sides square, making a close fit to the sides of the hives, or to each other when placed in the house apiary. The night they were put on, the temperature outside was down to 40 deg., in the house 60 deg., and a thermometer put under one of the quilts for a few minutes, showed 80 deg. Before putting on the cushions a pretty strong hum was heard during cool nights, but now we hear not even a 'whisper.'"

Bee Language.

Concerning the question of bees communicating with one another, Novice reports the following test:

"Yesterday (Oct. 18th), the door of the honey house by some means got open, and at noon we found them doing a 'land office business' on our sections of comb honey. The door was closed until they were all on the glass, and then opened just long enough to let them out. As a fresh army rushed in at every opening, it was some time before all were out, and as each lot rushed laden into the hives, a swarm of workers came out and made straight for the door way. At night they had given up buzzing around the door, and a feeder was placed in front of a hive which we watched until a few bees were ready to go inside with a load of honey; almost as soon as they were out of sight, a lot came tumbling out, and went straight to the door of the honey house. More kept coming, and we finally were convinced that they only know when a bee comes in laden, that it has obtained its load *somewhere*, and that the only way they have of finding it, is to scatter about in every direction until they find it."

Feeding Bees—Movable Frames.

The Rev. L. L. Langstroth say:

"When feeding large colonies in July and August to encourage the preservation and production of drones, I used old discarded fruit cans, putting in them two or three small pieces of corn cob, and one long one. These were placed in the portico about dark, removed next morning and set on the ground near the hives, so that they could be readily refilled and replaced in the evening. No robbing, no bees lost in the food. After two or three feedings the bees were as conscious of the time for feeding as our barnyard stock, parading impatiently over the floor of the portico, and finally swarming upon the can as soon as we had left it. If two cobs are tied together, one to be in the can, and the other outside so as to rest on the portico, a strong stock will empty the can in quite cool weather."

On the subject of movable frames he says:

"By all means let the old and new systems be tried by *experts*. I have no doubt that many are "dabbling" with frames, who would be much better off if they used the old gum, and the sulphur pit."

"The fact cannot be questioned, that for some reason the race of bee-keepers who make bee-keeping profitable without movable frames is fast dying out. Is there among them one who can compare, for success, with Capt. Hetherington, or the late Adam Grimm?"

"Let me call the attention of your readers to a single point, the rapidity with which after the most disastrous winters an apiary is re-established by those who have control of the combs, while similar losses with the box hives are irreparable."

"As friend Heddon has used movable frames and now returns to the old box, with supers for surplus, his reports will be looked for with all the greater interest. If all our fancied improvements are only 'fuss and feathers,' or at most beneficial to scientific amateurs, the sooner we know it the better, even if we should be as much surprised as any traveler on a first-class railroad car, would be if called to give it up for a comfortable seat in an old-fashioned stage coach."

Fifty Dollars Damages.

Novice was foolish enough to ask every one who had bought foundation of him, and were not satisfied, to send in their bills for damages. H. A. Burch sent in a bill for $50, which was paid, but Novice sent with it an appeal for mercy on his hard earnings. He adds that a few more such claims for damages would prevent him from continuing to publish *Gleanings*. Mr. B. thinks the foundation was $150 of damage to him, but he was modest, and asked only $50.

Novice should withdraw that "offer" at once. The existence of *Gleanings* should not be thus periled.

MOONS' BEE WORLD.

Domesticating Bees.

Friend Moon remarks that "Bees can be learned to come at *call;*" and then adds:

"We plac d a swarm in a dark room upon the floor. We fed in flat dishes with floats to prevent the bees from getting into the food. At fi st we had to rap on the hive to call them out. As soon as they found that their food was administered in that way, they were n t slow to come for it. We soon found that when we entered the room, with or without food, in the dark, and at the distance of 8 to 10 feet from the bees, by gentle raps on the floor, they would come to us by thousands. If we changed to another position they would follow us, always peaceable and kind."

Introducing Virgin Queens.

E. C. L. Larch gives the following as his method of introducing a virgin queen:

"She must be not more than a few hours old—the sooner after hatching the better. Place her on a comb where there is plenty of honey and close the hive. I have only succeeded in introducing one virgin out of several that were over twenty-four hours old, and she was caged 6 days in a hive with a laying queen. When the laying queen was removed, she did not commence laying until about 2 weeks old. I prefer to give to each new colony or nucleus a queen-cell, nearly ready to hatch, and then waiting about 6 hours. If I have the time, should several queens hatch at once unexpectedly, and they are discovered before being killed, I endeavor to save all that I can by giving all the surplus queens to nuclei at once.

☞ "Mr. Boardman says he feeds his bees with a composition of one spoonful of sugar, boiled in four spoonsful of water, to which is slowly added, (stirring always) half a spoonful of wheat flour. It has the appearance of white honey and answers the purpose very well. The above preparation can be increased to pounds, quarts, &c., if large quantities are required."

☞We issue this number of The American Bee Journal a few days earlier than usual, in order to permit the publisher to attend the National Convention and Honey Show at the Centennial grounds, from Oct. 25th to Nov. 1st; a full report of which may be expected in our next number.

The publisher has gone to the Centennial Meeting, at Philadelphia, and will not return till the 4th of November. So those writing to this office before that time, must not be disappointed if they do not get an immeciate reply.

☞No class of business suffers from the hard times more than the business of publishing a newspaper. Three-quarters of the newspapers published in this country are not paying expenses.

☞Among our many callers this month, we may name Mr. T. F. Bingham, of Abronia, Mich. He has already sent his bees to the South to winter. He has 200 colonies. He has a ton of comb and 1,500 lbs. of extracted honey.——Mr. Staples, of Columbia, Tenn., of the firm of Staples, Andrews & Vaughan. They have 400 stands of bees, and have sold a large lot of queens and bees this season as well as produced much honey.——Mr. R. R. Murphy, of Fulton, Ill., who was on his way to the National B. K. Convention. His extractor has already been awarded a premium by the Centennial Committee.——Mr. E. Osburn, Jackson Co., Iowa, also called. He has 56 colonies, many of them having given 100 lbs. of comb honey each. He has a ton of box honey now on hand.——Mr. George Thompson, of Geneva, and Mr. James Marvin, of St. Charles, of Kane Co., Ill., spent a pleasant hour with us. The latter has several tons of extracted honey; having sold his box honey, at 20 cts. per lb. in the quantity.——Many others have also given us a pleasant call, whose names we do not now remember. All of them, however, report a good honey harvest.

☞The Governor of the Province of Quebec, Canada, has just decreed that bee-keeping be taught to the pupils of the Normal School of Montreal. Mr. Thos. Valiquet, of St. Hilaire, has been appointed lecturer. We congratulate the Governor on his decision, and the superintendent of the schools upon the appointment of this experienced bee-keeper. He could not have made a better choice.

☞Mr. H. Alley, Wenham, Mass., has sent us one of his Smokers. It is a tin tube with a mouth-piece in one end, and a small tin tube in the other to force the smoke through. Mr. H. sends the following, descriptive of it and its use:

"I have used these pipes for the past 18 years, and hardly know how I could get along without one. I have taken 20 queens from nuclei hives by the use of one of these pipes, and put them into mailing boxes, without re-loading or re-lighting the pipe. Have opened and examined 4 Langstroth hives by the use of one of them; there is no trouble about the pipe going out. I hold it between my teeth and direct the smoke to any part of the hive I desire. If the bees attempt to run up from between the combs, I blow the smoke on them, and they soon get out of my way. I find it very useful when removing boxes or introducing queens."

Agents.—We want a good agent in every section of the United States and Canada. Such are invited to correspond with us.

An Old Bee Book.

Books are landmarks in the field of truth; milestones on the highway of knowledge. Not many years ago, some laborers while excavating in Broadway, N. Y., came upon an old milestone that still persisted in saying, "One mile to New York," though it was found in the very heart of that great metropolis. In like manner, old books often show themselves to be far behind the times, by their now obsolete contents, but in some cases they surprise the reader by showing that items of knowledge supposed to be new and modern, are very old and time-honored.

Both these remarks find numerous illustrations in a bee-book published sixty-two years ago in London, England. We came upon it while scanning a highly-varied assortment of second-hand and old publications, exposed for sale at a book-stall in an Eastern city. Originally sold at eight shillings sterling, an outlay of forty cents constituted the writer its happy owner, and it is no exaggeration to say, that the costliest new novel of the age, would not be half so interesting to an intelligent bee-keeper, as this now venerable volume.

The title-page is as follows: "A treatise on the breeding and management of bees, to the greatest advantage. Interspersed with important observations adapted to general use. Deduced from a series of experiments during thirty years. By John Keys. A new edition." This "new edition," the writer states in his preface, is in reality a new book. He says that in 1780, he "ventured to publish a work of this kind," according to the best knowledge and experience he then had. Now, thirty-four years later, the author, "in the vale of life," discovers, that as the result of his researches, observations, and experiments, he differs to such an extent from himself, that "instead of a second edition, a new book became necessary."

There are few active-minded men, bee-keepers or others, who do not differ amazingly from their former selves, both in opinion and practice, after the lapse of thirty-four years!

In the course of the preface, the author assures "apiators" that to the best of his knowledge, "every hint or information that has been found of any real service, in any writer of note, foreign or domestic, is comprised in this volume." A foot-note contains a list of these writers, and we own ourselves not a little astonished, at the number of names given. "Butler, Mew, Geddy, Purchase, Wolridge, Rusden, Warder, White, Thorley, Mills, Wildmans, Debraw, and Bromwich. Foreigners: Miraldy, Reaumur, Bonnet, Shirach, Needham, Norton, Seykers, and others of less note." It is rather extraordinary that Huber is not included in this enumeration, for it was reading the works of Reaumur and Bonnet, that interested him in the study of bee-life, and long before 1814 he had become widely known as a writer in that department of natural history. Indeed it was in 1814, that his numerous papers published through various channels, were gathered into one collection. He probably ranked then among "others of less note," though he subsequently became more distinguished than any of them. It is safe to infer that Keys was not much indebted to Huber, or there would have been more distinct acknowledgement of obligation to him.

The preface further states that within a few years, "warm disputes" had arisen between different naturalists and apiarian societies on the continent, "relating to the generation of bees, and the formation of artificial swarms in consequence of some new and wonderful principles advanced by a Mr. Schirach, secretary of an apiarian society. "Eight years of experimenting at the cost of much loss and disappointment had convinced Mr. Keys that Schirach's method cannot prove of public utility.

By way of redeeming this introductory paper from dullness, we append a few amusing extracts from Chapter I., illustrative of the queer ideas about bees that were in vogue 64 years ago. Speaking of the queen, he says, "The more full of eggs, the more yellow is her belly." Note this, ye breeders of Italian queens and let it settle for ever the controversy about light and dark queens! "She is five times longer in laying a royal egg, than a common one." "The queen is impregnated about August, by virtue of which she is enabled to breed in the spring, till she produces fresh drones." The idea of one impregnation for life, had not dawned on the apiarian world at that date. Drones are said to be discarded late in the season, because at that time they have become "devoid of the spermatic milky liquor." The large number of drones found in a hive, is accounted for because "the queen, containing some thousand eggs at a time in her body demands a larger supply of the prolific juice than a few drones are equal to furnish." This is noted as a matter of wonder, "the many thousand times I have observed drones in the combs, I never beheld one with its tail in a cell." Like

modern "apiators," Keys had an intense curiosity to procure a complete view of an intercourse between a queen and a drone, but alas! he died without the sight. By confining a queen and a drone under a glass tumbler, he had "several times been witness to those amorous preludes recorded by Reaumur." The queen would "caress the drone, frequently repeating such wanton gestures as would stimulate a torpedo, or any other male but a drone!" He repeatedly witnessed "a royal duel," under a tumbler glass between two queens taken from different hives, which always "terminated in the death of both." Describing a bee-dress, he says among other things, "an apron before will be useful to prevent these prying insects from tickling the belly." He adds, "Women should not meddle with bees, without this bee-dress; nor then, without the addition of a man's coat, and I had almost said, breeches also."

It will be highly unfair to conclude from the above extracts that the book as a whole is comical and laughable. On the contrary, it is wonderfully stored with good, sound, practical advice about bee-keeping, and some parts of it show that we have not made such prodigious advances in the art, as we are sometimes prone to flatter ourselves. But this article is already quite long enough, and we must reserve a further notice of this old bee-book for a future number or numbers. W. F. C.

New Zealand Clover and Bumble-Bees

The following is an item that has been "going the rounds" among the newspapers of this country:

An interesting experiment has been made in the shipment of two nests of bumble-bees from Plymouth, England, for Canterbury, New Zealand. The principal object aimed at in the introduction of these insects into the antipodes is the fertilization of the common clover, the pollen of which the common bee is generally unable to collect, while the bumble-bee, having a longer proboscis, and being much stronger, is able to reach sufficiently deep into the flower to collect the fertilizing dust.

Incidentally bees do fertilize plants, by scattering the pollen that adheres to their legs from the flowers they work on. But what can "two nests of bumble-bees" do for the salvation of the clover of so extensive a country as New Zealand? Surely it must be in a direful condition if it is dependent upon "two nests of bumble-bees" for its prosperity!

☞ Read our list for Clubbing papers.

Our Premiums for Clubs.

A. G. Hill has sent us one of his Gas Pipe Extractors to be presented to the person sending in the largest club of new subscribers to THE AMERICAN BEE JOURNAL before January 31, 1877. The Extractor is light and extremely simple. We will pay the express charges, so that it shall be "without charge" to the recipient.

D. A. Pike will present one of his beautiful Albino Queens—whose progeny will be one-half Italians and one-half Albinos—to the getter up of the *second* largest club of subscribers. The Albino will be sent, postpaid, May 1, 1877.

We will add the following:

For the *third* largest list, we will send a tested Italian queen in May, 1877.

For the *fourth* largest list, we will send 500 young tulip trees (4 to 8 inches high) in April or May, 1877.

For the *fifth* largest list, we will give a copy of THE AMERICAN BEE JOLRNAL for 1877, post-paid.

For the *sixth* largest list we will send, post-paid, a copy of Vol. I. of THE AMERICAN BEE JOURNAL, bound.

See our club rates on page 296 of this issue. Names and money can be sent in as received, mentioning that you wish to compete for the prizes, and we will open an account accordingly. Work should be commenced *at once.*

Bee-Keeping in Utah.

The editor of the Utah *Pomologist* gives his experience in practical bee-keeping in the following language:

Seven years ago we obtained a hive of bees, and from this colony have produced over *four hundred* colonies.

Last year we had no swarms, and this year but one, from 150 hives. At the swarming time we looked for queen cells and found none for these two years, though the hives were full and in good condition, so we concluded that they had been so widely propagated by division that their instinct for swarming had disappeared, and no queen cells are formed in spring as usual.

Our bees did splendidly all the early part of the season and filled up very handsomely, but when the dry weather came, few blossoms were left, and they produced little nectar, the bees fell upon broken and injured fruit, and laid up but very little honey. We must plant our bees in a five acre lot of mignonette, and then we shall not look in vain for plenty of sweets all the season.

☞ Out of 40,000,000 people in this country, about 70,000 are bee-keepers and these send to market about 15,000,000 pounds of honey and wax yearly, representing in value $3,676,763 for the former, and $189,388 for the latter.

The Cause of Foul Brood.

More than two thousand years since, Aristotle described this terrible plague; it is, therefore not of modern origin. This disease, causing larvæ to die in the cells, and creating a foul stench which permeates the hive, bringing death to its inhabitants, has been a subject for discussion for many years; and anything that tends to throw light upon it will be of interest to the readers of THE AMERICAN BEE JOURNAL. Dr. Schonfield, of Germany, has lately made a variety of experiments with it, and we present our readers with the following extracts from his paper, which has been translated by Mr. J. S. Wood:

Dr. Dzierzon proposed, by the wish of the editor (of *Bienen Zeitung*), at the last (Vandreforsamlingen) exhibition at Saltsborg, the following question: "What is to be looked upon as decided relative to foul brood, both as regards theory and practice, and what remains now undecided?" But, although he laid all his views and his name's influence in the balance in favor of the correctness of the Preusziske theory, he must still acknowledge that the incontestable proof was wanting, as at the conclusion of his answer he declared, "If also the theory brought forward by Dr. Preusz should prove correct, yea, even if it is the most probable, so is yet the question—cause, the sickness's real nature—even now enveloped in obscurity." Thus we stand in relation to the problem which I previously stated:

Firstly. It must incontrovertibly be proved that the spores of the fungus leave the dried-up foul brood, and they must, inasmuch as they float in the air, be able to be caught.

Secondly. It must next be shown that such fungus spores, that are caught in the atmosphere, when placed on healthy larvæ, can grow and increase to an uncountable number, until at last they kill the brood, and so prove themselves the cause of the sickness.

Although the problem appeared difficult, I went even confidently to the work. I wrote immediately to Herr Locher, in Sigmaringen, and asked him for a little foul brood. The 18th of June I received, enclosed in a letter, so much as I could form into a ball about the size of a pea. The substance was very dark, nearly black, moist, and tenacious, and its odor was exceedingly disagreeable. A careful examination under the microscope proved the presence of fungus of the same form as Micrococcus. Had I, after having solved my problem, began first to show that the spores could escape through the fly-holes (entrances) of hives containing foul brood, it would have been necessary for me (in order to have obtained such a hive) to dissolve the infectious substance in water, and therewith sprinkle a comb containing healthy brood. It is most probable that such a proceeding would have failed, as the bees would most surely have cast out the dead larvæ and pupæ before the artificially produced sickness had had time to develop itself fully, and infect the whole hive. In every case there would have gone a much longer time by that means before I had arrived at the result. I had not, however, in the mean time the opportunity, as I already wished to discuss my experiment at Halle. I, therefore, immediately made the experiment to catch the spores that were escaping, and were floating in the atmosphere, from the infected substance that had been sent me, and thereafter use them for infecting healthy brood. For this purpose I constructed the following apparatus: On a smooth-planed board I placed a bell-glass, in the top of which was a round hole; in this I fixed a glass tube two feet long; there was also fixed a similar glass tube in the board. In the top of the uppermost tube was fixed a plug of cotton-wool, as also in the under end of the bottom tube, and the wool was not pressed tight, but so that the air could circulate freely through both tubes.

The foul brood substance that I had received from Herr Locher, was now placed under the bell-glass on the 21st of June, and left to dry slowly. If, then, the assertion that the spores escaped in the air when the substance was dry was correct, then it was only necessary for me now and then to place the apparatus by the window in my study, and expose it to the full influence of the sunbeams, as if the air in the bell-glass, by the power of the sunbeams, was warmed up to 40 deg., it must, by a well known physical law, escape through the uppermost tube, while the cooler air from the floor of the study must enter the bell-glass through the bottom tube, and at the same time it was quite as certain that therewithal the spores of the fungus, that were carried by the upward currant of air, would be caught in the wool above.

On the 5th of July, on which day the substance was quite dry, until the end of the month, I got four plugs of wool, each of which had served as the top plug for about eight eays; besides these I had two pads of wool, each of an area of about four square inches, which I had placed inside at the top of the bell-glass.

Had the spores from the substance really been escaping? and had the wool caught them as they were coming out into the world? All rested on the answering of these questions; and examination gave the following results:

1. When quite a small portion of the wool was washed in distilled water, and thereafter a drop of this water placed under a microscope, it showed a considerable quantity of fungus Micrococcus.

2. If a plug of wool, as large as a pin's head, was laid dry on a piece of glass thereafter moistened with distilled water, and placed under the microscope, the Micrococcus could be seen partly in the water, and partly adhering to the threads of wool.

3. If the wool was examined dry it was difficult to see the Micrococcus, and it could only be seen by aid of the strongest lens, and through three objectives.

4. Of gun-cotton, of which I had two plugs, which were prepared with water as sub. 1 and 2, Micrococci were to be seen in still greater quantities than in the ordinary wool, probably because the one is finer and better suited to retain the spores.

Thus, by a practical method, I have solved the first part of my problem; and it is without a doubt proved, though in an unequal degree, that the spores of the fungus

from the dried-up matter escape, and are borne away by the atmosphere.

Therefore there cannot be the slightest doubt of the fact, that in consequence of the bees ventilating so strongly as they so often do, that the spores must be driven out of a severely infected hive in very large quantities.

When V. Molitor-Muhlfeldt, in order to refute this assumption, declares that there is no circulation of air in a bee-hive, but that, owing to the motionless air, the spores must sink down, and not pass from cell to cell, it sounds almost as if he had no idea of ventilation being caused by the bees, and as if he had not read paragraph 3 of Von Berlepsch's *Der Biene*. When Gunther has succeeded in working a small windmill of paper by placing it at the entrance of a hive containing a strong stock, then it is evident that the circulation of air produced in the hive by the bees must, in proportion, be a much stronger hurricane for these light spores than any such hurricane Von Molitor-Muhlfeldt has witnessed on the earth. And when the same opponent declares on the whole that the atmosphere cannot be the bearer of the infection, so has that invalid assertion been so thoroughly refuted by Dr. Ulde, of Halle, that I will not waste a word on the subject.

It is quite certain that it is not over all, and at all times, that the atmosphere will contain such a quantity of seed-germs; and Dr. Preusz goes too far when he declares that the atmosphere is *everywhere loaded* with these germs. If such was the case, foul brood infection would appear in every district where there are bee-keepers; but there can be shown many districts where this disease is quite unknown; as in my district, up to the present time, it has not appeared.

I certainly succeeded in producing a whole comb of dead rotten and stinking brood; but although I experimented with this comb in the most various ways, placed it at the fly-hole at the open door, and exposed to the sun's warmth and the atmospheric currents about my pavilion, I, after examination, found no more fungus than Fischer, who never had anything to do with foul brood.

Where there is no fungus present, there can never arise infectious foul brood.

Herewith we have approached nearer to the solution of the second part of my problem.

It next requires to show and afterwards to prove that pure fungus collected from the atmosphere by means of cotton wool, has the power to kill larvæ, and by so doing cause foul brood. To do this, I took, on the 30th of July, a comb with brood from a first swarm, brushed off all the bees, and covered about 100 larvæ with wool, which was made fast by means of some thread. The comb was hardly replaced again before the bees attacked the wool, and commenced casting it out in small pieces. On examination of the comb on the 1st of August, it showed that all the larvæ that had been covered with the wool were cleared away by the bees. Three larvæ above the previously closed cells died shorty after the bees had sealed the cells which they were in. The bell-covers were sunk, and the well known small hole was in the centre.

After this, about 100 other larvæ were covered with wool; but again, as also a third time, the larvæ and wool were torn out. I had nearly lost my patience, and I had only now two plugs and one of the squares left, which should be used for other experiments.

I now, rather anxiously, for a fourth time covered a brood-comb, and this time, fortunately, the bees let most of the brood remain in the cells. After an interval of four days, 7 larvæ died. An instantaneous and conscientious examination, by aid of the microscope, revealed the presence in their bodies of immense numbers of Micrococci.

Unfortunately, I was obliged now, on the 12th of August, to defer my experiments, as I could not postpone for a longer time a Bath tour on which I should have started at the beginning of the month. I forgot now to slide in a wire netting to prevent those larvæ that remained being torn out by the bees, but on my arrival at home from the Baths I found all in the best order.

Still the fact that Micrococcus possesses an enormous power of infection, and that it also attaches itself to perfectly healthy brood until it kills them, cannot longer be denied. As incomplete (which I myself acknowledge) as the above proof turned out, owing to the scantiness of material that I had at my disposal, and the haste with which I was compelled to operate, as strikingly and as unrefutably have I succeeded by another process to prove it.

As I at once saw beforehand that under the circumstances before mentioned, and the well-known strong propensity of every strong hive of bees to remove as quickly as possible every sickly or dead larva from the hive, it would be extremely difficult to arrive at a complete and satisfactory result, so the idea occurred to me to try the experiment of infection on the larvæ of other insects, which it would be possible to observe without obstruction.

As specially adapted for the purpose of this experiment, it occurred to me that the larvæ of the blow-fly would be the best, as these larvæ especially possess an extraordinary vitality, that, notwithstanding its voraciousness, it suffers hunger and thirst, and in defiance of its nudity, can withstand cold and heat most astonishingly; and besides the above, this insect resembles the bee in its development, insomuch as it is as larva 14 days, and it is as pupa about the same length of time. I could, without difficulty, procure and nourish these larvæ, and, what at that time was of most importance, I could take them with me to Johannisbath, and there comfortably observe them under the ordeal.

I, therefore, on the 11th of August, laid a juicy piece of meat in the window, and a fly of metallic lustre, desirous of laying, soon deposited a heap of eggs on it. The next day about 100 were hatched, and these grew with their well known rapidity. The second day of my stay at Johannisbath, to where, of course, besides these larvæ, I brought my microscope, some of the wool that contained the fungus, and also a few bell-glasses, under which latter I placed three separate sets of larvæ.

The first and second had each ten, and the third the remaining larvæ. The larvæ under the first bell-glass on the same day, together with the meat which was their resort, were covered with wool. Six days after this the larvæ attained their normal size, and this without my being able to

detect the slightest unhealthiness; on the same ten larvæ, under the same bell-glass, and on the top of the wool, I laid a fresh piece of meat, which, together with the wool, was well saturated and smeared with the excrement of the larvæ.

Two days afterwards, seven of the larvæ were dead; some lay on their backs, others on their sides, but all were stretched out. The others lived and transformed after one, two, or three days' interval.

A very careful microscopical examination the next day of a dead larva showed that the whole surface of its body was covered with Micrococci. I might wash any portion of the larvæ and examine the water; I might place the minutest piece of skin under the objective and then moisten it, but always the same result—Micrococci in innumerable numbers.

As the remaining six larvæ soon decomposed, three of them were dried on a piece of wadding so that they could at a latter date be used for experiments of the same kind. Again, two were examined while decomposing, and were found full of uncountable Micrococci; and these last were spread on a piece of meat and given as food to the ten larvæ in the second bell-glass, which, up to this time, had not shown signs of transformation. While we for the present leave these ten unfortunate victims to their fate, let us turn to the three pupæ, which, to all appearance, fortunately have transformed, and whose cocoons gradually get of a darker color.

Our first closer examination convinced us that they were dead, as the cocoons here and there were sunken in. Two of them that I cut out of the middle in the direction of the length revealed such large quantities of Micrococci fungi, that they, without a doubt, must be acknowledged as the cause of their death.

The third pupa, like the three before mentioned larvæ, was reserved for future experiments.

When I to the above add the ten larvæ from the second bell-glass died berore transformation, after a few days' interval, being the result of having eaten their fungus—containing sisters—that one larvæ that I examined before its death already contained an enormous amount of fungi, and that all the others after death proved to be full of fungi inwardly—more especially in the intestines—while the larvæ in the third glass transformed and came into existence as flies, that I for many days bent over the microscope, and had examined more than a hundred pieces; so there can be no longer doubt of the fact that Micrococcus also infects perfectly healthy larvæ, and in the end kills them.

This result, willingly and without opposition, will be accepted by the scientific, as there is nothing to find therein that is opposed to experience or research.

Herr Molitor Muhlfeldt rightly enough declares in answer to my earlier articles, that no fungus-spores can take root on the undamaged skin of healthy animals, be cause the main principle—the suitable underlayer—is only found when the animal is unhealthy, or when about and unnoticeably has already begun to decompose or dissolve; and this assertion does not allow of scientific proof. And even if it were correct, Dr. Preesz's theory is by no means refuted thereby, or even threatened, as in reality every larva that is seized by infection, finds itself in an extremely sickly state, which may be traced to another cause.

In general, the larva dies soon after the cell is closed, and before it envelops itself as a pupa; during the time that the larva changes itself to a pupa; not alone the skin of the larva decomposes, but the larva, certainly as the result of the natural metamorphosis, finds itself in a sickly condition, and to every deadly attack peculiarly and specially adapted for infection.

We could, therefore, if we might allow Muhlfeldt's assertion a little attention, very easily say at the sickening time of preparation for transformation, and during transformation, the dying and decomposing skin of the larva is the very best and most suitable condition for the support of the fungus' growth so that it multiplies at a rapid rate, and kills the larva before transformation is at an end. Therefore, since Dr. Preusz and Vogel, at Saltsborg, have given the decided assurance that there are always found Micrococci in foul brood, and since I have practically proved that healthy brood can be infected by Micrococci, so can there no longer be doubt that where foul brood appears as an epidemic, there the infection is produced and carried to effect by Micrococcus.

The Situation of an Apiary.

It is two thousand years since Columella lived and penned his thoughts about bees. The following is his advice for the situation of an apiary, and it will be interesting to the many readers of THE AMERICAN BEE JOURNAL.

It were desirable that it face the south, and be situate in a place neither too hot nor too much exposed to the cold. That it be in a valley, in order that the loaded bees may with greater ease descend to their homes. That it be near the mansion house, on account of the conveniency of watching them, but so situated as not to be exposed to noisome smells, nor to the dim of men or cattle. That it be surrounded with a wall, which, however, should not rise above three feet high. That, if possible, a running stream be near them; or, if that cannot be that water be brought near them in troughs with pebbles or small stones in the water for the bees to rest on while they drink; or that the water be confined between gently declining banks, in order that the bees may have safe access to it, they not being able to produce either combs, honey, or food for their maggots without water. That the neighborhood of rivers or basins of water with high banks be avoided, because winds may whirl the bees into them, and they cannot easily get on shore from thence to dry themselves. And that the garden in which the apiary stands be well furnished with such plants as afford the bees plenty of good pasture. The trees in this garden should be of a dwarf kind, and their heads bushy, in order that the swarms that settle on them may be the more easily hived.

☞Mrs. Tupper has been released from custody at Davenport, having given bonds for $800 for her appearance at court.

The Dzierzon Theory.

DEAR EDITOR:—I am but a beginner in bee-keeping, and I see in THE JOURNAL that you often speak about "the Dzierzon theory." Will you oblige me and others by giving a synopsis of that theory in THE JOURNAL? JULIUS JOHNSON.

The "Dzierzon theory" was by the Baron of Berlepsch formulated into thirteen propositions, which are as follows:

FIRST.—A colony of bees in its normal condition, consists of three characteristically different kinds of individuals—the queen, workers, and (at certain periods) the drones.

SECOND.—In the normal condition of a colony, the queen is the only perfect female present in the hive, and lays all the eggs found therein. These eggs are male and female. From the former proceed the drones; from the latter, if laid in narrow cells, proceed the workers or undeveloped females; and from them also, if laid in wider, acorn-shaped, and vertically suspended, so-called royal cells, lavishly supplied with a peculiar pabulum or jelly, proceed the queens.

THIRD.—The queen possesses the ability to lay male or female eggs at pleasure, as the particular cell she is at any time supplying may require.

FOURTH.—In order to become qualified to lay *both* male and female eggs, the queen must be fecundated by a drone or male bee.

FIFTH.—The fecundation of the queen is always effected outside of the hive, in the open air, and while on the wing. Consequently, in order to become *fully* fertile, that is, capable of laying *both* male and female eggs, the queen must leave her hive at least once.

SIXTH.—In the act of copulation the genitalia of the drone enter the vulva of the queen, and the drone simultaneously perishes.

SEVENTH.—The fecundation of the queen once accomplished, is efficacious during her life, or so long as she remains healthy and vigorous; and she never afterwards leaves the hive, except when issuing with a swarm.

EIGHTH.—The ovary of the queen is not impregnated in copulation; but a small vesicle or sac situated near the termination of the oviduct, and communicating therewith, becomes charged with the semen of the drone.

NINTH.—All eggs germinated in the ovary of the queen, tend to develop as males, and do develop as such, unless impregnated by the male sperm while passing the mouth of the seminal sac or spermatheca, when descending the oviduct. If they be thus impregnated in their downward passage (which impregnation the queen can effect or omit at pleasure) they develop as females.

TENTH.—If a queen remains unfecundated, she ordinarily does not lay eggs. Still, exceptional cases do sometimes occur, and the eggs then laid produce drones only.

ELEVENTH.—If, in consequence of superannuation, the contents of the spermatheca of a fecundated queen become exhausted; or if from enervation or accident, she loses the power of using the muscles connected with the spermatheca, so as to be unable to impregnate the passing egg, she will thenceforward lay drone eggs only.

TWELTH.—As some unfecundated queens occasionally lay drone eggs, so also, in queenless colonies, no longer having the requisite means of rearing a queen, common workers are sometimes found, that lay eggs from which drones, and drones only, proceed. These workers are likewise unfecundated; and the eggs are uniformly laid by some individual bee, regarded more or less, by her companions as their queen.

THIRTEENTH.—So long as a fertile queen is present in the hive, the bees do not tolerate a fertile worker. Nor do they tolerate one while cherishing a hope of being able to rear a queen. In rare instances, however, exceptional cases occur. Fertile workers are sometimes found in hives immediately after the death of the queen; and even in the presence of a young queen, *so long as she has not herself become fertile.*

Bee Products in the U. S.

The census of 1870 returns only 136 apiarists—meaning of course that there were only that number who gave that as their exclusive business.

The bee products as returned by the census, was 14,702,815 pounds of honey and 631,129 pounds of wax in all the United States. The States producing over 50,000 pounds of honey are as follows:

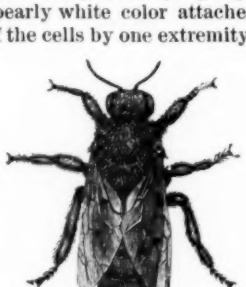
Alabama	320,674
Arkansas	276,824
California	294,326
Florida	50,884
Georgia	610,677
Illinois	1,547,178
Indiana	395,278
Iowa	853,213
Kansas	110,827
Kentucky	1,171,500
Maine	155,640
Maryland	118,938
Michigan	280,325
Minnesota	92,606
Mississippi	199,581
Missouri	1,156,444
New Hampshire	56,944
New Jersey	60,536
New York	896,286
North Carolina	1,404,040
Ohio	763,124
Oregon	66,859
Pennsylvania	796,989
South Carolina	194,253
Tennessee	1,039,550
Texas	275,169
Vermont	142,932
Virginia	505,239
West Virginia	376,997
Wisconsin	299,341

Illinois, it will be seen, stands first in the order of honey-producing States, the next largest being North Carolina, Kentucky, Missouri and Tennessee, each of which produced over 1,000,000 pounds. Only these, and six other States, produced over 500,000 pounds.

Physiology of the Honey Bee.

To the student of nature, a colony of bees presents a scene of the most lively interest.

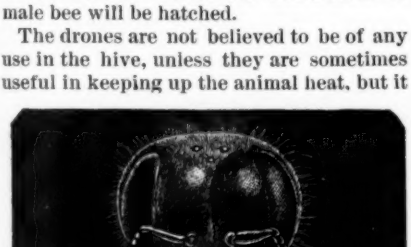
If we draw from a hive a sheet of brood comb, and look into the cells, we will find small, ovoid-oblong bodies, slightly curved and of a pearly white color attached to the bottom of the cells by one extremity. These



ITALIAN QUEEN.

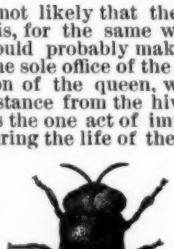
are the eggs from which young bees are to be produced. If found in the coarser cells which measure four to the inch a drone or male bee will be hatched.

The drones are not believed to be of any use in the hive, unless they are sometimes useful in keeping up the animal heat, but it

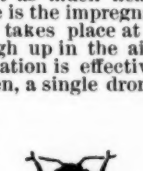


HEAD OF THE QUEEN.

is not likely that there is any economy in this, for the same weight of worker bees would probably make just as much heat. The sole office of the drone is the impregnation of the queen, which takes place at a distance from the hive, high up in the air. As the one act of impregnation is effective during the life of the queen, a single drone



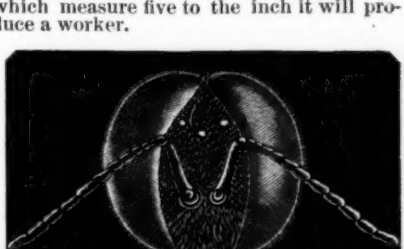
ITALIAN DRONE.



ITALIAN WORKER

for each hive might seem enough. Instead of this, there are usually hundreds, which secures greater safety for the queen when she goes on her bridal trip. The aim of the apiarist, however, is to generally suppress the large production of drones, which is easily done by keeping only a small amount of drone comb in the brood chamber.

If an egg is laid in one of the smaller cells which measure five to the inch it will produce a worker.



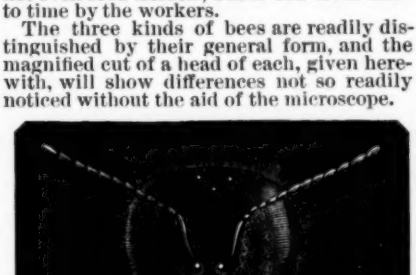
HEAD OF THE DRONE.

The workers are undeveloped females, and they are rightly named, as they do all the work, cleaning the hive, feeding the young, building the combs and gathering the honey and pollen.

If an egg be found in a queen cell, or if an egg is laid in a worker cell and the cell much enlarged, the larva being bountifully fed, a queen will be produced.

The queen is the only fully developed female in the colony and in general only one will be found in each hive. She is rightly named by the French, the "mother" bee, as she is the mother of all; her only business being to lay eggs, and during her time of laying, which is most of the year, she does not even feed herself, but is fed from time to time by the workers.

The three kinds of bees are readily distinguished by their general form, and the magnified cut of a head of each, given herewith, will show differences not so readily noticed without the aid of the microscope.



HEAD OF THE WORKER.

The mandibles or biters are different and the eyes of the drone occupy most of its head. The eye of the bee is compound, being made up of a great number of single eyes, and in the forehead of each will be seen three single eyes. These three single eyes are round, and the facets or little eyes in the compound eyes are six sided, probably on account of their compression by the surrounding facets.

Correspondence.

For the American Bee Journal.

Drones.

In a paper published in THE AMERICAN BEE JOURNAL for July, page 188, Mr. Geo. Thompson urges the importance of looking more to the drone, as a means of improving the Italian bee. His conclusions are proper enough for him to maintain, and would probably do but little or no harm were it not for two reasons, which impel me to claim some space in the JOURNAL, for the purpose of showing their fallacy.

First. He supports his theory by quotations from Dzierzon, Berlepsch, Vogel, and Langstroth, which are, to some extent, in point. Now I assume that the opinions and theories of any and all of those eminent apiarians are valuable, just in proportion as they are the result of actual experience and careful observation; and to no greater extent. If those men have shown how, and especially why we should, as Berlepsch says, "constantly endeavor to presevere and breed from the finest, that is, the most brightly colored drones," then we should, at least, test the matter thoroughly before rejecting their theories. But if experience teaches us that "brightly colored drones" are not a test of their purity, then we should not hesitate to reject their theories as readily as if it was the whim of the veriest novice in bee-keeping. My experience is that Italian queens that produce pure worker progeny, and whose daughters are of uniform color, invariably produce drones of a uniform color, but not as a rule of the bright shades—not "brightly colored drones." I can see but very little difference in the shade of the drones produced from over thirty pure Italian queens; while queens which are hybrid, although from pure mating their worker progeny may appear pure, are more likely to produce "brightly colored drones." Those that are not pure, and that have mated with black drones, almost invariably produce finely marked, bright drones.

A friend of mine, who is surrounded by black bees, introduced three or four queens, which I removed in 1874 on account of mating badly, and I never saw a finer lot of drones than he has from the daughters of the queens I gave him; while the drones of the old queens are not unusually bright. Another instance:—In May, 1875, I sent a colony of bees, whose queen had mated badly, to a friend who was surrounded by black bees. It swarmed twice, and as her worker progeny was hybrid, so was her queen progeny. They in turn mated with black drones. The drone progeny of those young queens, produced this year, are very bright—the whole abdomen being of a bright golden hue. Would these be proper drones for bee fathers? Certainly they would if "bright colored drones" are the only ones to breed to, to insure pure Italian bees. If the color is not a test in one instance, can it be relied upon in any case?

Second.—Mr. T. insists that the male bee should be looked to as much as the female. He says: "Let me draw your attention to the fact that cattle and fowl breeders give as much, if not more heed to the male, and they are very successful in their operations." Why select "cattle and fowls" only, unless he intends to term "cattle" to include all domestic animals, which I think he did. But let us take him literally, and see if the parallel exists between cattle breeding and bee breeding. In the first place, in cattle breeding, the male as well as the female has a sire. This is not true of the bee. In the second place, if the breeder wishes beef, he has the muscular developments of both male and female to guide him in his selections. In this no parallel exists in the honey bee. If he desires milk, he must, in selecting the males, select only from breeds that are the best milk producers, must be controlled by the qualities of the mother and ancestors; just as in getting good honey-gathering bees. The stock breeder looks to the male for the reason that in it, as a general rule, he can see the qualities which he most desires, while the bee-breeder cannot see a single quality in the drone which he would desire to perpetuate, unless it be the color. The queen should be healthy and prolific, and from the best honey-gathering stocks. The bees should be good honey gatherers, and it is desirable that they be docile, and bright colored, at least uniform in color. The drones should be of stocks possessing the qualities desired and that is all that can be attained. If bees are pure I find no difficulty in their disposition. If they are a cross with the black bee I always find them allied closely in temper to the hornet. The disposition will call attention to impurity where the eye will not detect it, save in the queen progeny.

If so much depends upon the color of the drone, then my friend Thompson should be *very careful* in selecting not to get those which evince any irritability of temper, lest by mating with a queen of a cross breed she might produce bees that would be a terror to the nations. He should select only large, lusty, fat drones (good feeding develops the finer qualities) and make a specialty of taking those (if honey is his object) which have an ability to "gather in" the largest amount of honey in the shortest space of time, and if the color is all right we may look for results. J. E. RICHIE.

Lima, O., Aug. 16, 1876.

For the American Bee Journal.

Alsike Clover as a Honey Plant.

DEAR EDITOR:—As you desire the experience of your readers with alsike clover as a honey plant, I will say, I have tried it on a stiff clay soil and it has not given satisfaction, and I much prefer white clover; in fact the alsike soon disappears and the white clover takes its place. It may do on wet bottom land. It is certainly a fine honey plant, and by sowing every year would produce a fine crop of honey, but the white clover is as good and holds its own from year to year without re-sowing.

My bees are now gathering honey from honey-dew, and are filling up rapidly. This is the first honey-dew we have had this season. I am glad you are calling the attention of bee-keepers to the importance of cultivating honey-producing plants. To be successful in bee-keeping we must have pasturage for our bees. If all our bee-keepers would plant linn, poplar, tulip, and

sumac, and cultivate the various shrubs and honey plants, there would be less grumbling about bad honey seasons. If we would, I am satisfied we could have a honey harvest from the time fruit blossoms appear until frost. A bee farm with all the various honey-producing trees and shrubs and plants, would, if properly cared for, furnish a succession of flowers from April to Nov. In Southern Kentucky we cannot depend on the natural honey resources.

If we would make bee-keeping pay, and I am well satisfied we can do it, then let every man who can, plant and cultivate the best honey plants he can obtain, and success will crown his efforts; thousands of pounds of honey will then be gathered where bees scarcely make a living now. A friend of mine told me a large linn tree would afford from 10 to 15 gallons of honey; and linn will grow on any soil, if properly cared for. N. P. ALLEN.

Smith's Grove, Ky., Sep. 12, 1876.

[Reports about alsike clover are conflicting. While some report a failure others are loud in its praise. Of the latter class is one who writes to the Maine *Farmer* and calls himself a "Practical Agriculturist." He says that he has given this species of clover a trial. He began ten years ago, and sowed five pounds of seed on half an acre of land in the spring, and he had a good stand of grass in the fall. The next year he produced two loads of hay and 100 pounds of seed. The second year the yield of hay was the same, and 165 pounds of seed. Its superiority over red clover was such that he did all his seeding with it up to the present time.

We should be glad to have others give us their experience with it.—ED.]

From the Michigan Farmer.

The Wintering of Bees.

Jack Frost has already tinted the maples and elms with red and yellow; even our gorgeous fall flowers, golden rod and the asters are fast fading. These sharp mornings with now and then a chilling breeze remind us of the colder times we may soon expect and for which provision must now be made. Among other things we must not forget our little pets—the bees. They have labored unceasingly whenever they could find anything to do, and have given us a generous supply of delicious nectar with which to grace the tea-table and tempt the palate, and in gratitude we should see that they are made as comfortable as possible during the dreary months of winter. Aside from this, it will not pay to neglect them, and it will pay to take good care of them.

The yield of honey from buckwheat this year has been quite good in most portions of the State, and as a little has been added from the late wild flowers the hives must be well supplied for the winter. In sections where firewood is abundant, or certain species of golden-rod are plenty the hives are filled very full almost every fall. The asters which grow in our State are not the kinds which furnish the large yields of honey so often spoken of, so comparatively little can be counted upon from that source. It would pay our apiarists to procure seed of the most common species of wild aster which grows in the middle southern States. We suppose, then, that our hives are fairly supplied with honey this fall, yet, to be sure each hive should be examined, and any that may be deficient, supplied by feeding honey or white sugar syrup, or by giving them combs full of sealed honey. While there are many expensive styles of feeders, simply a shallow pan set in the cap or top story of the hive will answer every purpose. A quart or so of food may be poured in just at dusk, and shavings or cut straw scattered on the surface to keep the bees from drowning. In order to estimate correctly the quantity of honey in a hive it will be necessary to examine each comb separately or to weigh the whole together and then deduct the weight of the hives as well as something for the weight of the bees, combs and pollen. The easiest way I found is to ascertain by weighing the amount of honey which a comb of average thickness will contain, and from that estimate the amount in each hive. Of course an allowance must be made for the weight of the combs, especially if old, and the pollen they may contain. A little practice will enable one to judge quite accurately by simply lifting one comb after another from the hive, how much honey it contains. There ought to be not less than thirty pounds to each stock that is to be wintered on the summer stand; for in-door wintering twenty pounds will suffice. My experience has convinced me that, other things being equal, those stocks that have a superabundance of honey are much more apt to prove the paying stocks during the next year, than those that have to be fed any time after November or even than those that have just enough to carry them through until spring flowers appear. Forty or fifty pounds then would be preferable to thirty. In examining the combs it is well to cut one or two small holes near the center of each to serve as winter passages for the bees; and, if possible, arrange the combs in such a manner as to leave some empty cells or such as contain brood near the centre of the hive. The brood soon hatches, and in cold weather the bees crawl into these empty cells and being densely packed between the combs the whole mass is enabled to keep up the necessary heat of the hive. It is the natural disposition of the bees to store their honey in this shape, that is, over and around the brood nest; but during a good yield of honey late in the season they fill and seal all the combs to the bottom. When this occurs the bees, being separated by the cold sheets of honey are liable to perish before empty cells are obtained. The remedy is to use the extractor on the central combs, removing only a portion of the honey from each. We suppose then that one of the conditions upon which successful wintering depends is present, namely: an abundance of honey.

The second point to be mentioned is that the hive should be well stocked with bees. Carefully lift the cover or turn the hive up some cool morning and if the cluster occupies five or six spaces call the stock fair. Yet "the more the merrier," and safer, too.

Our third point is, every hive should have a good queen, one that has shown no signs of failing and is not past her third season.

Special repositories with thick walls like those of an ice-house are often constructed for wintering purposes. Dry cellars are

also devoted to the same purpose. These rooms should be dark, and, if possible, kept at a temperature of about 42 deg. F. The hives should be set in as soon as cool weather makes its appearance; and before the combs become frosty, the top of the hive may be removed and a blanket or straw mat laid on the frames.

If the stocks are populous, and have good queens and plenty of honey, and the hives can be properly packed I would rather have them remain on their summer stands. Make a box just the width and length of the hive and three inches deep and set the hive over it. This will give an air space below the combs and preclude the possibility of the freezing up of the entrance. If the hives are large so much the better. Place the eight or ten combs containing the winter's food near the center, and hang on each side a division board, made by nailing together pieces of lath with an even layer of straw between them; place above a cap or top story several inches deep, lay a quilt or straw mat across the tops of the frames, and pack chaff or cut straw over and around them very closely. The cover should not shut very tightly but should admit no water. If snow-drifts cover the hives, they will be much better off.

To sum up, then, the conditions for successful out-door wintering seem to be the following: Strong stocks, plenty of honey, good queens, large hives well packed above and at the sides with dry absorbing material, an air space of two or three inches below the combs, and a chance for the moisture caused by the heat of the bees to pass off very gradually without permitting any draft of air through the hive.

I have had stocks prepared in this manner that reared brood all winter and were in splendid condition for the next season's work. There will be no trouble about "springing" such stocks. When thus prepared I have never lost any colonies in wintering, but I have lost them when they were placed in a cellar or buried in pits, or when they were neglected on their summer stands.

Knoxville, Tenn. FRANK BENTON.

For the American Bee Journal.

Chips from Sweet Home.

We started with 103 hives, increased to 175, got 1,920 lbs. box honey and 940 lbs. slung honey, and about 30 lbs. beeswax. In taking off our boxes we had 122 section boxes that were more or less filled, of the sections partly filled and not salable for comb honey, my wife slung out 200 lbs. Of the sections that were filled and capped nicely I filled 38 boxes, weighing 613 lbs., the empty combs are saved for next year's filling. I have 70 6-lb. boxes partly filled containing about 200 lbs., of which I cannot well make any use; this alone makes considerable difference in favor of the sections. This season was very favorable for swarming, and the forepart was favorable for honey, but the month—from Aug. 15 to Sep. 15—that we count on for honey was very wet, raining nearly every day, so our crop is quite short.

Here is an idea and plan to prevent swarming, or at least to do the next best, for which I am indebted to J. L. Wolfenden of Adams, Wis. I give it as he wrote to *Gleanings* and also on a postal card to me, as I wrote him to tell us "all about it." I have had better success with box honey this season. The way I fool them is this: When they swarm put them in an empty hive just beside their old one. When nicely at work, say in one or two days, give them their old combs and boxes and everything goes on as though nothing had happened. I keep queen's wings clipped when swarm issues, watch her, turn old hive half way round and cover entrance, put new hive with one frame of brood close by old one with queen in front, when bees return release her, when all in, turn old hive to its former position; let them remain that way a day or two, then give them their old combs minus queen cells. I tried it on 6 or 8, and no failures, they worked in boxes as though nothing had happened.

If we can prevent increase, then we will have attained the four things for profit, viz: movable frames, Italian bees, honey slinger and no increase. D. D. PALMER.

Eliza, Mercer Co., Ill., Oct. 9, 1876.

[The above was *all* written on a postal card. Friend Palmer thinks printers have good eyes and magnifiying ones, at that.—ED.]

For the American Bee Journal.

Sundry Observations.

THE BEE MOTH.

We never considered the moth-miller an enemy to bees. Whoever knew a hive of bees destroyed by these pests, unless the hive was first greatly reduced in bees? It is only after a hive has become queenless that the bee moth gets control and destroys the combs. The moth worm does not like the taste of honey, and that part of the combs containing honey are the last to be eaten by them. Novices, as a general thing, get the idea into their heads, that the moth is in their hives, and they fear that they will soon lose them. All hives have more or less moth worms about them, but no strong stock of bees was ever injured by them.

Hives with "patent moth traps" attached to them are only got up to swindle the novice who does not understand the habits of the moth. All such clap-trap fixings are a perfect humbug. Of course if the miller can be destroyed they won't do any damage to even a queenless colony. Moth traps won't do much towards destroying them. At this age of movable comb hives no stock of bees need be destroyed by worms, and only a careless bee-keeper will permit such a thing to occur on his premises.

Last winter we read an article in a certain bee journal and the writer acknowledged that he had lost a hive by worms, and this writer has taken it to himself to teach other bee-keepers the art of bee-keeping, and I notice that there are several bee-keepers who have had not over five years' experience, undertake the job to teach the same art. We old ducks must take a back seat and look on. Appearances about the entrance of the hive indicates what is going on in the hive. Most observing bee-keepers have no trouble in determining whether a hive is queenless or infected by worms without examining the combs. If a hive is known to have been queenless for a month

or longer, look out for worms if the weather is warm, in a short time, unless it is soon taken care of. Combs that are not wanted for immediate use should be fumigated with brimstone. It not only preserves the combs from the ravages of the moth and other insects, but it keeps them in their natural state from becoming mouldy, dry, and worthless. We usually fumigate them in this way: Take a large dry-goods box and pack the combs around the sides, leaving room in the centre large enough to admit a good-sized stone. We heat the stone quite hot and place it in the box, then put roll brimstone on it and cover the whole thing up as tight as possible to keep the fumes of the burning brimstone in, and my word for it, no insect will ever touch those combs, and if there are any about it, it is sure death to them or to any eggs in them. Combs that have been laid up thusly one season are not worth much and we never use them. We prefer to have our bees make new combs, as bees work better in them.

WORKER BEES IN DRONE COMB.

If Mr. R. R. Murphy will look over the back numbers of the JOURNAL, say 9 or 10 years ago, he will find a case reported by me of "worker bees in drone comb." We gave a stock of bees a large proportion of drone comb and fed them liberally, hoping thereby to compel the queens to lay some drone eggs. We examined the hive and found plenty of eggs in the drone combs, but when they hatched out they were all worker bees. We have no trouble now in getting all the drones we need.

SWARMING.

Mr. Wm. Kellogg has his doubts about a hive casting a swarm without first starting queen cells. During our experience we have known of a large number of such cases. We had one this last season come off and no cells were started, but the heat of August drove them out. This stock had a very prolific Italian queen, the largest one I ever saw. After I had hived the swarm, I examined the old hive and found no cells. In the course of a few days I removed a lot of cells and gave them a queen. This I could not do safely until they had made some cells. H. ALLEY.

Wenham, Mass.

For the American Bee Journal.

Keeping Honey.

I put up six one-pound cans of beautiful linden honey, being careful to make it one homogeneous mass by stiring. It was taken from the combs by an extractor on July 20, and put into cans on August 1. The cans were placed respectively as follows: One in a dark dry cellar, one each under shades of red, yellow, green, and blue glass, and the sixth can in full light. On Nov. 8 the honey in the cellar candied to a white. Nov. 22 to Dec. 10, honey under colored shades candied, first in the red, next in the yellow, green and blue; while the honey in full light remained transparent until January, when it soon candied after exposure to intensely cold weather. From my experience, an equal temperature would preserve certain kinds of honey, while other kinds would candy under almost any circumstance. I think that candied honey, instead of being looked upon with disfavor, should be recognized as evidently pure. I hope, however, that the above experiments will lead others to follow up the light theory with beneficial results.

A WISCONSIN BEE-KEEPER.

For the American Bee Journal.

How Queens are Sometimes Lost.

Many colonies become queenless, with new beginners, during the spring and fore part of summer; and when the bee-keeper finds the queen is dead or missing and the workers are constructing queen cells, he concludes at once they are superseding their queens. If he knows the queen is young (being reared only the last season) he can give no reason for their supersedure, but if it is one that he bought, he is apt to wrongfully blame the queen-breeder for sending him an old queen instead of a young one, as he agreed to.

In 1865, Mrs. Tupper said: "bees often destroy a queen for no apparent reason.' There is no doubt that there are some cases of bees superseding their queens; but they are few, compared to the number that become queenless. When I had but a few colonies of bees I was anxious for them to increase in number, and I would overhaul them often, and assist them in every possible way. I have often opened a hive and found all right, the queen laying splendidly and the colony increasing rapidly in numbers, but when I opened it again two or three days after, I found the queen dead and half a dozen to a dozen or more queen cells being constructed. This was apt to be the case with my breeding hive, as I usually looked at that the oftenest. In 1875 I found the cause of such destruction of queens.

It is (with laying queens) simply by overhauling the colony in cold unfavorable weather and during cold nights. Perhaps overhauling them during a drouth of honey might produce the same effect. Last year (1875) I found my breeding queen dead about the middle of May, and thought, of course, it must be that they were superseding their queen. As I had read about bees superseding old queens, I thought the queen breeder had got out of having one old queen die on his hands, though I bought her for untested in 1874. I then reared seven of her queens, but two of which ever became impregnated, being too early in the season. On the 13th and 14th of June, we had very cold mornings, but pleasant days. At noon on the 14th I opened a hive that I knew the queen would be one year old the 10th of August, and while holding the comb with the queen on it, and admiring everything that was going on, the queen passed through a small hole in the comb, and as she started through I saw a worker seize hold of her. I then turned the comb round to see what the consequence would be, and found every worker near her was pitching into her and had her imprisoned in a moment. I then rescued her and caged her the same as introducing a strange queen. I then thought it must be the same influence the cold nights had on them, and to make a farther test of it, I went to a hive containing a fertile queen less than a month old. I looked the combs once over and failed to see the queen; I then handled the combs over the second

time, and found her imprisoned in a knot of workers. I then rescued her and caged her and returned her to her own hive, and in two or three days I released them both the same as introducing a strange queen, and both were received all right. This proved to me beyond a doubt, that the cold weather had the influence on them to take revenge on something, but why they want to take the life of their queen is more than I can understand, when they seem to realize that their very existence depends on their queen, and will put forth every effort to rear others as soon as one is lost!

Some apiarists seem to think that bees destroy their queens by being in a different part of the hive a considerable length of time, getting a different scent from the other part of the colony, and when they pass over the workers will destroy them: but it is readily seen that this is a mistake, for they will destroy their queens when overhauled in disagreeable weather, when we know by the brood nest that they have been in all parts of the hives every day, for weeks.

As for virgin queens the case is different. I never yet have had a virgin queen commence laying, though I have never tried the the experiment in the fall. I have had them hatch in the spring in advance of the drones—or rather before drones were of any use—and nearly every one that was not impregnated in a reasonable length of time, was destroyed without disturbance.

Palo, Mich. S. K. MARSH.

For the American Bee Journal.

Is Bee-Keeping Unreliable?

Yes; but not more so than farm products generally. The wheat crop, for instance, is no more reliable, and when it is a good crop the prices are liable to run down so low that a fair estimate of the use of land, manure, labor, seed, interest, taxes, etc., will equal or exceed the market value of the entire crop through the State. So it is with the corn crop, while an average honey crop intelligently managed will sell at a fair price, and although the original stock has not dimished in value, the receipts will pay full 100 per cent. on all investments.

We are often reminded of the obstacles in the way of prosperity in bee-keeping, such as millers, moths, robbing, going to the woods, etc. These are all imaginary, and if properly managed need not be feared. Really the greatest obstacle in the way of progress is *ignorance*, followed (as the swordfish and shark swiftly follow the wounded whale) by *swindling impostors* who live and feed on ignorance and who have bled and nearly devoured our bee-keeping interests. Just in proportion as bee-keepers, or any other class, are *informed*, they cease to be easy game for sharpers and knaves, whether they be venders of complicated non-swarming bee hives, with moth traps, or whether they vend morus multicaulis, Chinese yams, wine plant, branching corn, with the ears nicely *glued* in, or choice varieties of apple trees, grafted on miserable crab roots, sold at double the usual price, to double the sales and quadruple the profits. The rule holds good, apply it where you will.

Bee-keeping is now reduced to a science and though in its infancy has its main principles ascertained and fixed. Only those who learn the science and become familiar with its application will be likely to succeed. As in all other avocations, especially rural pursuits, the unskillful and unscientific will fail to realize their expectations.

Franklin Co., Vt. O. C. WAIT.

Surplus Honey and Care of Bees.

EXTRACT FROM AN ESSAY READ BY MR. J. A. CRANE BEFORE THE BOARD OF AGRICULTURE OF VERMONT.

As fast as boxes are filled and capped they should be removed, and replaced by new or empty ones if the harvest will warrant it, and as soon as the harvest fails, all should be removed, as the combs become soiled by the bees, if they remain very long in the hive after being filled. And just here I want to say a few words about boxes. For market, they should be with glass sides and ends, with top and bottom of wood, and of a size that when filled will weigh about 4 pounds. I make mine 6¼ inches long by 4¼ in. wide, and 5⅛ in. high outside. Two nice, white pieces of comb should be attached to the top before the box is nailed together, to induce the bees to commence, and guide them in building straight combs lengthwise of the box; such combs being the most suitable size for the table. When ready to ship to market these boxes should be made tidy in appearance by removing all propolis, and if the glass side of a box is badly soiled it should be removed and replaced by a cleaner one. Cases should be made with open sides, that the quality of the honey may be seen at a glance, and large enough to hold 12 boxes. In these carefully pack the boxes, three in width and four in length, and on one end mark the net weight, with the owner's initial letters. October and November are the best months to ship to market.

After the honey harvest is past and all the boxes removed, the bee-keeper should again go over his hives to see that all have abundance of honey for winter. If any hive is found that is lacking in food it should at once be supplied, or else the stock must be broken up later in the season and united with some other colony. If there is a deficiency of bees in any hive, they must be supplied with brood from hives that can spare it, or else they must be stimulated by feeding to rear young bees, or two or more such united. Also at this inspection the age of every queen should be noticed. If any queen is found that is three years or nearly, it should be destroyed and replaced by a young queen. A queen three years of age may winter well, but is apt to fail early the next spring, which is very injurious to the prosperity of the colony. I prefer after the harvest to destroy all old queens over two years of age, and give the colony a young one instead. If a hive contains a young, fertile queen, an abundance of young bees hatched out the last of the summer, and plenty of honey, it possesses the most essential requisites for successful wintering. Comb two or three years old is preferable to new comb, as it is warmer.

☞Please look over "Our Clubbing List" before subscribing for *any paper*. It will pay you to avail yourself of the advantages there offered.

For the American Bee Journal.

My Report for the Season.

MR. EDITOR:—Now that the honey harvest is ended for another year, it seems eminently proper that we state what has been the conditions with each other and what the results.

My 25 stocks came out of winter quarters strong—never have lost any in wintering or springing. I have always prepared my hives for winter by stuffing dry leaves or fine cut straw around the sides and on the tops of the frames, having first placed a woolen cloth on the top, and contracting boards at the sides; placed them in the cellar some warm day, about the 20th of Nov., and taken them out somewhere from the 10th to the 20th of March. This year I have made rye straw mats—straw unthrashed, nice, straight and unbroken—have not only put them on top of the frames, but also at the ends or sides, using them instead of contracting boards and shutting them in nice and warm. Shall use cut straw and leaves as before.

My hives when placed in the cellar are heavy with honey, and I cannot conceive a state of things, either as regards man, beast or insect, wherein they may have too much of a good thing, the surroundings being all right. I do not wish to discuss this matter now, and would simply say that when I use the extractor with box honey, it is the last of spring or first of summer, never in the fall.

The season here for honey has been short, but tolerably good while it lasted, closing with the white clover, excepting, perhaps, 10 to 15 days of blue vervain. The latter not yielding honey as last year, though there was abundance of it growing here. It has been warm and wet, a bad year for the swarming fever, yet I have only increased my stocks to 28—three increases. Yet they bothered me exceedingly and gave me such an experience as I never had before. What that experience was, it would be a waste of time to tell. Almost every one who has had bees, thinks he has some singular experiences; and in all candor, let me say, I think it very likely; tell the biggest yarn on swarming, and if I don't endorse it, I can tell one that I would not have believed one year ago, and the best, or worst, of it is, it would be true. I know what the trouble was now, and I thought what the trouble was then, and the only difference between now and then is: I've thought what the trouble is now and know what the trouble was then—I hadn't a non-swarming hive.

In closing, let me say that the results of the year has been 2,500 lbs. of nice box honey. R. H. MELLEN.

Amboy, Ills., Oct. 15, 1876.

For the American Bee Journal.

Black Bees—Wintering.

I have had black bees, Italians and hybrids, and at this time only have the common native black bee. Some may wish to know my reasons for discarding the Italians and hybrids, and I will give them. First, the native black bee will stand cold weather better, work better in boxes, start brood earlier in the Spring or later part of Winter and are just as easy to handle without getting stung, and protect themselves against moth with proper attention, as well as any imported stock and they have always given me more box honey than the Italians or hybrids.

I always bury my bees on three sides with straw and dirt and give an open front for flight in the Fall, Winter, or Spring. I set my hives on wide boards, two inches from the ground, in a row with an east front; about six inches apart; fill in between the hives with hay or straw and place on the west side, hay one foot thick, and then cover with wide boards to keep dry, and my bees come out all right in the Spring. I also have a wide loose board set up in front of the hive for a wind-break, and whenever it snows I brush away the snow with a broom. I also use woolen cloths on the top of frames and pack the cap or top of hive full of dry hay in order to give upward ventilation and to absorb all moisture accruing from the breath of the bees. W. N. W.

Wayne Co., Iowa.

For the American Bee Journal.

How to Successfully Winter Bees.

That is a problem quite difficult to solve, and one, too, that has puzzled the best apiarists of this country for years. Opinions and theories as to the causes, and the means of prevention, were plenty enough and seemingly plausible, but when put into practice they would not invariably work as expected. Bees would die when surrounded by the most favorable conditions, apparently, and bees would prosper and come out all right in the spring under what appeared to be extremely unfavorable conditions. The question is not settled yet, but a majority of bee-keepers, after trying all methods, have decided that cellar wintering is the best.

But all does not depend upon the place of wintering. Much depends upon the condition of colonies at the commencement of winter. They must be populous—full of young bees—which condition can always be secured by commencing in time. They must have honey enough to winter on—not less than twenty pounds to the hive. The honey must be pure and sweet. If it has soured in the cells, as it frequently does, substitute sweet honey, or white sugar syrup. There must be empty space in the central combs for the bees to cluster in. This can be secured by removing a frame and putting the rest farther apart. Winter passages through the combs are a great convenience for the bees, as it saves them from traveling up over the frames.

Before putting into winter quarters, lay small sticks on the top of the frames, and on these lay a piece of carpet or quilt. This will make a passage for the bees over the frames, under the quilt. The quilt will preserve the heat, but allow the moisture to pass off. Having all these conditions filled, wait for a fine day in November, when the bees fly freely, and then put them in the cellar. Put them where they are to stay, contract the entrances, keep the cellar perfectly dark, and on no account disturb the bees till spring. If the cellar is dry, dark, quiet, and properly ventilated, you have done all you can, and must wait for the result in the spring. J. H. W. PRYNER.

Butler Co., O.

From the Country Gentleman.

Feeding Bees.

The feeding of bees is a matter in which the inventive genius of man may profitably be exercised in discovering a method that shall be perfectly satisfactory under all circumstances. It is the general custom to feed them in the hive, by placing the food in the supers in a manner that will attract the bees to it. For instance, a colony of bees is found in October to be short of honey, a fact that every skillful bee-keeper may ascertain by lifting the hive, or even by raising one side of it; or if he has movable comb hives, he may examine the combs. These bees may be fed on honey in the comb, strained honey, or on a syrup made of white sugar, four pounds to a quart of water, heated to the boiling point and skimmed.

If honey in the comb be used, first lay down small sticks, about half an inch thick, directly upon the frames, or when common hives are used with supers, upon sticks laid between the holes through which the bees pass up into boxes in the supers, but now removed. You lay down a piece of comb, scatter a little honey near the holes, rap on the hive, and the bees come to the holes immediately to see what is wanted, and finding the honey, they will, if very short of honey, soon carry it all down into the lower section of the hive. But in some cases they will cluster on the comb, cement it to the hive, and leave it where it is, not knowing that it will be impossible to come up and get the honey in cold weather. It is best, therefore to uncap the cells with a sharp knife, and then the bees will carry all the honey down.

Feeding in some climates should never be delayed beyond September, but in warmer latitudes it may be done in October, and in some localities it may be done all winter. The novice in bee-keeping may ask, "Why not feed the bees outside, in front of their hives?" This would be feeding the entire apiary—those colonies that already have enough, or too much, as well as those that need feeding—and when the honey had all disappeared, the strong colonies would in many cases commence robbing the weak ones, being highly excited over the spoils.

I have spoken of comb honey to feed to bees; but strained honey and sugar syrup are better, sugar being found about as good as honey. There are different methods of feeding these. Some "patent" feeders have been introduced based on putting the honey or syrup into a vessel with cotton cloth at the bottom, through which the bees take the honey; but it is useless to buy such a feeder, as anybody can make one if wanted. Let a tinman make a cylinder about the size of a quart measure with both ends open, then attach three legs, to be soldered on about an inch from the bottom, which space will allow the muslin to be tied over it. The legs should come down about an inch below the lower edge of the feeder; and when the cloth is tied on, and the feeder filled with honey, the cloth will, or should, sag down in the center, so that the bees can reach it; and they will soon cover the cloth, and in one night they will empty the feeder, if the cloth is not too thick. If the feed is too thin it will run through the cloth too fast, and if too thick not fast enough. The tinman should make a cover to the feeder, or the bees will enter it at the top, and get stuck fast in the honey. If strained honey be fed it should be slightly thinned, by adding a little water, and heating it to the boiling point.

Another way to feed bees in the caps of their hives, is to put the liquid feed into a tin cup with perpendicular sides, and quite shallow, say from three to four inches deep, and to hold a quart. Fill this cup nearly full, and then cover the honey with floats made as follows: Take rods three-eights of an inch square, saw them off with a fine-tooth saw in pieces a half an inch long, then with a sharp penknife cut off the edges to the center of each piece, and you have the best float ever invented, and originating with the writer. You take a handful of these floats (made of dry white pine) and spread as many upon the surface of the feed as you can, without putting one upon another; you then place the cup in the hive, and tole the bees up to the feed by letting a few drops of honey run down on the outside of the feeder in several places; or a piece of honey comb filled with the feed may be placed against the feeder, and reaching to the top of it. As soon as the bees have found the feed, in one night they will empty a quart feeder, taking every particle of it, and not a single bee will be killed by getting into the honey. It was a mere accident that I learned the value of these floats, the principal point being in cutting them down to octagons.

When an entire apiary requires feeding, which may happen in a bad season for gathering honey, the bees may be fed outside in several large feeders; but great care must be taken that the strong colonies do not rob the weak ones, as soon as the honey in the feeders is gone. Sugar syrup does not cause robberies as much as honey; but honey may be fed outside to fifty or more colonies, and no robberies take place, if you contract the entrances to the hives of your weak colonies, as soon as the bees have carried in the last of the feed, so that but one or two bees can pass in and out at the same time. If the robbing has commenced, all you can do is to contract the entrance immediately; or you may close them entirely, giving ventilation by raising the hive a little, and slipping in thin wedges at the corners. Keep the hive closed an hour, then open it, and rap on it to cause the robbers imprisoned to go out, then close again till after sundown, then open it long enough to let out any remaining robbers, and to let in the outside bees that belong to the hive, then close again, and so leave the hive till all robbers cease to try to enter, which will be in 48 hours, then open again with the passage-way contracted, and your bees will be safe, if the hive contains enough to be of any value.

An important consideration in out-door feeding is, whose bees you are feeding. You may be feeding your neighbors' bees, as well as your own; consequently you should feed on a warm sunny day, give your bees a copious supply, and not repeat the feeding for some days. By so doing, the operation will be over perhaps before your neighbors' bees have scented the honey.

But all this kind of feeding can be dispensed with, if you have movable frame hives, a few to be fed, and as many colonies that have more honey than they need. You merely exchange the empty combs in hives

short of honey for full ones taken from colonies that can spare them. This can be more safely done in the spring than in the fall. A populous colony ought to have in October at least 25 lbs. of honey, in order to be sure of a winter supply. Sugar will winter bees as well as honey; but either ought to be fed early enough to allow the bees time to seal over the cells before cold weather comes. In feeding in the caps of the hives, it is best to feed about sundown, so that the bees of your other hives will not be attracted. If you begin early, a pound a day is enough to give them. Always feed in mild weather, when the bees will not be chilled by remaining in the supers all night. In using new tin feeders, I recommend rubbing some melted beeswax upon their outsides, as the bees often find it difficult to walk upon the slippery tin. A very little wax suffices.

What bee-keepers now need is a feeder that can be placed directly in front of the entrance of a hive; admit the bees freely to it at any season of the year when they fly out; not obstruct their passage in and out at all, and not attract the bees of other hives in the apiary to the feed. Such a feeder would save a great deal of labor, in opening hives, lifting off their roofs, etc., besides enabling one to feed his bees in the winter season, in mild weather, if standing out, which could not be done in the supers, as they would (or should) be covered by some winter protection. T. B. MINER.

Maury Co. (Tenn.) B. K. Society.

The above society held their regular annual meeting on Saturday, Oct. 7, at the Recorder's office, Columbia, Tenn.

Present: W. S. Rainey, President; C. C. Vaughan, Vice-President; Wm. J. Andrews, Secretary and Treasurer. S. D. McLean, Travis McLean, T. J. Perry, J. C. Moore, E. C. Overton, D. Staples, J. M. Byers, R. H. Caskey, J. J. Jones, A. Bowen, and others.

The minutes of the last meeting were read and adopted.

The President stated that before proceeding to the regular business he would be pleased to have an expression of the views of the members on the propriety of feeding sorghum molasses.

S. D. McLean—Had no experience in feeding sorghum, but was of the opinion that they would not take it very readily.

W. J. Andrews—Had fed some to his bees, but did not regard that which he had been feeding as a good article. It was very dark, and he thought slightly scorched in making. Some of his colonies partook of it very freely while others would not take it at all. He had mixed some with honey, and when so mixed they partook of it very freely. What the result would be from it he could not say.

C. C. Vaughan—Had also fed it mixed with honey, and they took it freely.

W. S. Rainey—Had fed it, and noticed that at times they partook of it freely, and that at other times they would not touch it.

R. H. Caskey—Thought that when they partook of it they were unable to gather honey; but when able to find honey in the fields that they would not touch it. He had fed honey, and at times they would not touch it, and he attributed it to that cause.

D. Staples—They will take it, and they will not starve as long as they can get it. He thought that the reason they took it at one time and refused it at others, was owing to the weather; that when the weather was cool it became too thick. That if fed to them warm they would partake of it freely. He thought equal parts of honey and sorghum made a good feed. Did not think it advisable to feed much of it when they were confined to the hive for a long time; but in our latitude, where they are able to have a fly every few days, did not think there would be any bad results from feeding it.

W. J. Andrews—If exciting to a robbing mood they would take it hurriedly.

C. C. Vaughan—Thought they might be induced to take it by feeding on honey for a while; but would not advise the feeding of sorghum.

R. H. Caskey—Had fed a colony on sorghum last spring, but did not think it did them any good.

J. M. Byers—Had a swarm to come out that was entirely destitute of supplies. He fed them sorghum from a bottle; they were slow to take it at first, but did so. He fed them nothing else. It stimulated them, and they soon commenced gathering honey. He was told that the queen was the easiest killed by food that would not agree with them. In this case the queen was not killed from eating it, and she had nothing else to subsist on.

J. J. Jones—Thought to make a thorough test of the matter, they should be fed on it when it was impossible for them to get anything else.

W. J. Andrews—Moved that the next experiment be "Feeding Sorghum," adopted; and the President appointed A. Bowen, J. J. Jones and C. C. Vaughan as the committee to make the experiment.

W. J. Andrews—Had the question recently put to him as to the quality of honey gathered from pea blooms, and would like to know if any of the members could give any information concerning it. None knew anything of it.

Mr. J. J. Jones then read the following essay: *Mr. President and Fellow Bee-Keepers:*—At the June meeting of this society, it conferred on me the duty of addressing you on the subject of honey.

HONEY PLANTS.

We have a vast number of plants in our locality that yields honey—some more and some less—the poplar and the linden being the source from which we get our greatest yields of honey.

GATHERING HONEY.

Bees gather, but do not make honey, as many suppose; hence the great variety of honey—each variety unerringly telling the expert from what plant it was gathered.

HONEY.

Webster says that honey is composed of mucilage, sugar and acid—mucilage the adhesive part, sugar the sweet part, and acid the sour part of honey. Some honey have more and some less acid in it. For instance, I think our linden honey has more acid in it than any other kind of honey we can get; and owing to this fact the uneducated are sometimes led into error.

For instance, a sick man sent to me one time for some honey, and I sent him what I thought to be as fine linden honey as I

ever saw. An intelligent young man, whose opinion should justly be represented, was visiting this sick man and tasted some of this honey, and said that it was sour honey; that it was extracted too soon. Now if he had known that this acid taste was peculiar to the linden honey, I know that he never would have said that it had soured.

EXTRACTING HONEY

It has been my practice for years to extract honey just after the bees have commenced capping. After this time there is but little uncapping to do, and it makes less work for the bees in repairing the combs. I use a large barrel with one head out and well waxed inside; into which I put my honey as I extract, and until it is full; after which I let it stand a few hours, and then draw the honey off into another barrel, always leaving a few gallons in the former barrel. This will save skimming, and will give you nice pure honey in your barrels.

SELLING HONEY.

This is the most important point in bee-keeping. We know that ours is a good locality for bees, and we know that they will gather large quantities of honey, but how to turn our honey into cash at a fair price is a question for our consideration.

We may dispose of a few hundred pounds of honey at home in the way of barter, but get very little cash.

From the little experience I have in shipping honey, I cannot make a very favorable report. Although we have been selling our honey at 25 cents per pound, the expenses have been so great that I do not think that we have realized more than ten cents per pound for our honey. But I think if our bee-keepers society could agree and get up some kind of a co-operative arrangement to sell our honey, we would do much better than this.

PREJUDICE.

There is much prejudice by the uninformed against extracted honey. Some saying that it is not as good as comb honey; and others say that we bee-keepers extract our honey to soon, or before it gets thick enough, and the consequence is that it sours, and some go so far as to say that extracted honey will sour any way. And when we go into the city to sell honey we find that there are but few who will buy extracted honey—that is in the granulated state; they say and believe that it is artificial honey.

Now while these notions of clever people may be amusing to intelligent bee-keepers—still these notions are an injury to us, and we have to meet them the best we can.

HONEY AS FOOD.

Almost everybody is fond of honey, and the number who are not is very small. Honey has been used as food by man from the earliest ages of the world down to the present time. And some of the wisest men that the world has ever produced have said that honey was good.

Samson on his way to get married took honey from a colony of bees in a frame hive of his on the way and ate and gave it to his partner and mother, and they did eat.

One of the Prophets said of Christ, "Butter and Honey shall he eat, that he may know how to refuse the evil and choose the good."

The last food Christ ate on earth, and that was just after his resurrection and before his ascension was honey.

On motion the appointment of Mr. M. G. Grigsby to read an essay at this meeting was continued until the next.

S. D. McLean—as one of the committee to experiment on "what age the larva passes the stage of being reared into a queen" submitted the following report:

I deprived a colony of bees of their queen on the 25th of September, and on the 7th I destroyed all cells. I again destroyed all cells on the 9th; on the 11th I destroyed three more, after which time there was no more constructed.

W. J. Andrews—of the same committee reported that he made a colony queenless July 5th; on the 8th he cut out three cells; on the 9th one cell; on the 10th one cell; on the 12th two cells; on the 13th one cell; on the 14th four cells; on the 15th and 16th he found no more cells, and inserted more brood on the 16th.

S. D. McLean—thought that the experiment was conducted at the wrong season of the year, that it ought to have been in the Spring.

J. J. Jones—Had had queens of the same sitting to hatch some as early as the 11th, and others as late as the 16th day.

D. Staples—Had had them to hatch from 9 to 19 days.

C. C. Vaughan—Had them to hatch this season on the 10th day from the egg.

S. D. McLean—Thought that bees worked from instinct altogether, and never do anything wrong.

The President—If that be true, then why do they eat sorghum, which you think will probably do them injury?

S. D. McLean—I am not sure that it does injure them, as I stated at the outset, I have no experience in that way.

After considerable discussion, it was agreed that it would be about ten days before eggs and larva would pass the stage of being converted into a queen.

The Secretary then submitted his annual report, showing the receipts and disbursements, which was received, accepted and ordered to be spread on the minutes.

The Society then proceeded to the election of officers for the ensuing year.

J. J. Jones moved that all the officers be re-elected by acclamation. Adopted.

S. D. McLean moved that C. C. Vaughan, D. Staples, R. H. Caskey be elected as Executive Committee by acclamation. Adopted.

On motion the Secretary was instructed to secure a permanent place of meeting.

It was moved by S. D. McLean and adopted that the President be requested to deliver an address in January.

S. D. McLean moved that the Secretary address a communication to prominent bee-keepers requesting them to write essays to be read at our meetings. Adopted.

It was moved and adopted that the Secretary prepare a suitable blank for annual reports to be made in April of each year, and furnish the same to the members to be filled up. Adopted.

S. D. McLean moved that in view of the fact that our Secretary contemplated visiting the Centennial—he be requested to attend the meeting of the National Bee-keepers' Association to be held in Philadelphia, and that the President give him a letter to said society, requesting them to extend to him such courtesies as they can consistently, &c. Adopted.

WM. J. ANDREWS, *Secy. and Treas.*

For the American Bee Journal.

A Sorghum Mill Death to Bees.

On the first of September (last month) I had 165 strong stocks of native bees, full to overflowing, and from one quart to a hat-full lying around the entrances of each hive. They were populous colonies with full stores.

A neighbor, within a quarter of a mile, put a sorghum mill in operation. The third day a person told me that the mill would soon use up my bees. I took no notice of it, as I thought if it did kill 8,000 or 10,000 it would not matter, as I had plenty, and to spare. On succeeding days the news came to the same effect. At the end of the first week since the mill was started, I noticed that my bees were all gone inside the hives or elsewhere. I examined them and found 48 stocks had only about a pint of bees left, and the remaining 52 contained about a quart each.

On going down to the mill, I discovered that the destruction had been immense during the previous week. Two barrels, holding 61 gallons of juice each, were covered with coarse sack or gunny bag cloth, for straining the juice. On one side was a hole as large as an egg, where my bees had entered almost *en masse*, and about two good swarms were drowned in these barrels every three or four hours. On one side of the boiler is a tub to receive the boiling scum or foam; this attracted the bees, about as much as the barrels, and thousands perished by scalding every hour.

The workmen had to be protected, as they had been stung by the bees, and their hands, arms and feet were much swollen. I suppose there is no help for it—as this is a free country.

If I had only a few stocks I could move them, but it is quite a task to move so many, and it is hard to see them murdered in this way.

In Quimby's Mysteries of Bee-Keeping, he says: "For a man to see 100 stocks of bees starving at one time is rather discouraging to a sensitive mind. It will be well for him to lay up a stock of fortitude in prosperous times, large enough to last him through such seasons of discouragement." This suits my case; though mine were not starved but murdered, it needs just as much fortitude to last through this season of discouragement.

I have used my honey market-boxes for feed boxes. I had a number of them made of tin. I cover the bottoms about one inch deep with syrup and put in small laths as floats.

I have tried a new way of feeding my bees. I made a scaffold, laid tight, 8 feet wide and 20 feet long, under cover. On this I spread out every morning about 2 inches thick of fresh ground apples and sprinkle with a garden sprinkler a solution made from 4 lbs. of sugar to 2 gallons of warm water, each morning and noon. My bees seem to like this kind of food.

My bees have always made me a good living as well as enough for themselves. My hives are crowded now with full stores, but my object in feeding is to stimulate them to keep breeding to replace those destroyed at the sorghum mill. Will it do to feed through Nov. and Dec. for that purpose?

At the time of writing this, it appears to me that my bees are improving in numbers, and the hives were well filled with brood when the old bees went to the sorghum mill.

J. E. GADSEY.

Williamson Co., Tenn.

Do Bees Make Honey?

Prof. Riley, who asserts that bees do not simply gather but actually make honey, is met with the following from a correspondent of the *Scientific American*. He says:

Is it not astonishing to find that professors of this day state that bees make honey? A good common stand of bees, having but short distance to travel, will increase their stock of honey from one to two pounds in twelve hours' fair work. What chance is there here for a digestive process? Place three pounds of loaf sugar syrup within easy reach of such a stand at 8 P. M.; it will all be taken up and stored away before sunrise next morning. I once thus experimented: After feeding to about forty hives, nine barrels of Cuba honey, upon examination I found no difference between that in the comb cells and that in the barrels, only the former was clearer from dirt. The honey becoming exhausted, I then fed the bees during the rest of the fall with loaf sugar syrup. Upon examination next spring, I found the comb cells filled solidly with well-grained loaf sugar, precisely like that I had dissolved to feed the bees with. Other comb cells were partly filled with Cuba honey and partly with ground loaf sugar.

For the American Bee Journal.

Keeping Bees over the Winter.

Again winter is upon us, and bee-keepers look forward with anxiety to its results in reference to his pets.

Having very good success in wintering bees of late, I thought I would append a few notes in the way of giving my method of preparing for winter.

First, I raise the hive from the bottom board by placing a frame three inches in depth, and the size of the hive, between the hive and bottom board, which gives a space for filth, dead bees, &c., to remain without coming in contract with the combs. I am now making hives with a tight bottom, and giving a space of two-and-a-half inches under the frames. My reasons have been given in the back numbers of THE JOURNAL.

Second: I do not extract honey at the close of a honey harvest, as I have found invariably, that the bees will fill up empty combs with pollen to an injury to the colony for winter, as pollen is more susceptible to dampness, and will sour sooner than honey.

Third: I strive to give my bees honey that is gathered in warm weather.

Fourth: I give no upward ventilation, as I have found that the mortality was greatest with those hives that the honey board did not shut tight. If I had upward ventilation I should close the lower, as the bees in a hive are more susceptible of change in temperature where there is a draft through the hive. I am now making hives with the top perfectly tight. For the last two years my bees in tight-top hives have swarmed from

two to four weeks earlier than in a shallow top opening hive.

Fifth: I winter bees in a repository, and try to have the temperature as near 35 deg. as possible, if in cold weather I keep at the above temperature, I can keep it cooler in very warm weather, so that it becomes more even in temperature than if kept at either extreme.

Now, Mr. Editor, I have given some of my notions in regard to wintering bees, and if it does any good I shall be very thankful as I owe THE AMERICAN BEE JOURNAL for nearly all I know about bee-keeping, aside from experience.

I do not know that the bee-keepers of the country, are any nearer agreed as to "what ails the bees" than ever; but it is time the circle grew smaller. I believe every bee-keeper should be a sort of naturalist and philosopher, and unless we are, we shall not succeed in this age of improvement. So I think Mr. Editor, that the question of "how shall we winter our bees successfully" will be overcome, as well as all others essential to success. C. C. A.

Rice Co., Minn., Oct. 13, 1876.

Notes & Queries.

When do bees stop breeding in the fall?
G. HUNT.

When all kinds of forage give out, then breeding will cease.

Hickman, Ky., Sept. 23, 1876.—Please tell me, through THE JOURNAL, the name of the enclosed plant. G. ILISCH.

The fragment of a plant sent by G. Ilisch, of Hickman, Ky., is a species of Thoroughwort, and as nearly as can be determined from the specimen, it is *Eupatorium serotinum*. A very near relative is known as White Snakeroot. C. E. BESSEY.

State Ag'l College, Ames, Iowa.

Which is the best hive for all purposes?
W. LAMB.

The Langstroth hive is more in favor than any other, and we think that the nearer you come to it, the better. There are a few things that may be improved a trifle, but they are not essential.

I want some good works on bee-culture; what would you recommend me to get? Please state the prices. C. DODGE.

Langstroth on the Honey Bee, $2.00; Quinby's Mysteries of Bee-Keeping, $1.50; Vol. I American Bee Journal, $1.25, and the "manuals" as advertised in this JOURNAL, are among the best things to be obtained.

How far should the frames be apart?
JOSHUA COLEMAN.

From centre to centre, there should be about 1⅓ inches.

Owensboro, Ky., Sept. 24, 1876.—"DEAR EDITOR: Enclosed you will find a sample of the top of a plant that appears to yield a vast amount of honey. It commences flowering in August and bids fair to continue until frost. The main stem attains the height of 6 or 7 feet, and near the ground is about ⅝ or ¾ of an inch in diameter, and square-fluted on the sides; the flowers are purple, with only one petal, and that only on the top side of the flower pod. The bees visit it by thousands from early morn till night. Will you please to give it a name in the columns of the JOURNAL. I also send you a few pods of ripe seed from the same." G. M. WOODWARD.

The plant enclosed by Mr. Woodward is *Scrophularia nodosa*, called also figwort. It is abundant on low ground throughout most parts of the country. Not only is it interesting from Mr. Woodward's standpoint, but its mechanism is very curious, and has long been an object of study to the botanist. C. E. BESSEY

State Ag'l College, Ames, Iowa.

"Is there not some fear that we shall soon stock the world with honey, and that it will become a drug in the market?"
JOHN EMERSON.

No! The market has not yet been developed to one-tenth of its capacity. Every locality should be worked, till this wholesome article of diet shall find a place on every table. The price will come down, but there is no doubt that it will become a staple article like sugar, at no very distant day; and there will be more made than now by the *raiser*. The law of supply and demand will regulate that.

Please tell me which is the best time to commence bee-keeping? Is it not as well to buy now, when bees can be obtained cheap? JOSEPH SCAMMON.

No. It requires skill and care to carry them through the winter, and you should prepare yourself by "reading up" the subject of bee-culture during the winter, and then in May you can safely begin by purchasing one or two hives. Go slow. Understand that to be successful you *must* study the subject well, and thoroughly. If you cannot get the larger works, procure a copy of the first Vol. of this JOURNAL, and one of the manuals, as advertised elsewhere and you can from them get sufficient information to commence.

Pointe Coupee, La., Oct. 10, 1876.—"I send you a specimen of a fine honey plant. I never saw but one stock of it. The bees have been on it from sunrise until sundown for over a month, and to-day it seems only just begun. They just swarm on it. It grows six feet high, the top from this one root is 4 feet in diameter." W. B. RUSH.

It is *Eupatorium serotinum*, a common plant in alluvial ground; it is a relative of bone-set and also of white snake-root.

Ames, Iowa. C. E. BESSEY.

Our Letter Box.

Wayne Co., N. Y., Sept. 28, 1876.—"I have 60 stocks, and have this year taken 900 lbs. of honey from them, and doubled the number I had in the spring. They are all in fine order for winter. This has been a poor honey season." D. M. KETCHAM.

Breakabean, N. Y., Sept. 20, 1876.—"Last fall I had 39 stocks and 700 lbs. of honey, but this fall I have 66 good stocks and 1,500 lbs. of surplus. My bees are all in good condition for wintering." W. B. BURGET.

Dakota Co., Minn., Oct. 3, 1876.—"The first part of the season was poor for bees, while the latter part has been the best I ever saw. I have over two tons of honey, for which there is not as ready sale as last year. I am selling extracted at 15c.; comb, 20c. I can give you my experience for the last two years, during which time I have lost but one swarm each year. I had 48 swarms last year and 76 now." W. DYER.

[Shall be glad to have you describe your plan of wintering for THE AMERICAN BEE JOURNAL.—ED.]

Owensboro, Ky., Sept. 24, 1876.—"My bees have done well this season. I have increased from 9 to 23 colonies; have them all in two-story Langstroth hives. I use an extractor and hardly think I would keep bees without one. Honey sells well here; could sell several hundred pounds at 12½ cts. in large lots and 16⅔ cts. in small lots; purchaser furnishing packages. Comb honey is worth 25c. at retail and 20c. in large lots." G. M. WOODWARD.

Louisa Co., Iowa, Oct. 5, 1876.—"Our bees have done well; had 4 stands in the spring, increased to 7; extracted 180 lbs. of honey, besides some in boxes, and the hives are full yet. Our bees are much stronger than ever before." MRS. A. B. WINDER.

Warren Co., Ill., Oct. 6, 1876.—"Bees have done splendidly here this year; giving us a magnificent yield of white clover. I tried to keep them from swarming but could not wholly prevent it. I find no trouble now in getting comb honey. The secret is to get the hive full of bees then make their brood chamber smaller, and thus crowd them up to the boxes. I found no need of extracting brood combs, as they kept them nearly full of brood. I have had no success with the Rocky Mountain bee plant, silver hulled buckwheat, lophanthus, or alsike clover. I have tried them all, except the silver hulled buckwheat, several times, and failed. The buckwheat I sowed on a low ground, beside the black, which also failed, this year." L. C. AXTELL.

Clinton Co., Ill., Oct. 11, 1876.—"My bees have done nothing but swarm this season. I shall have to double more than half of my young swarms, and a good many of my old swarms have not enough to carry them through the winter. I did think they would get some honey in September, but it was so wet and cold, that they could fly but little." C. T. SMITH.

Chautauqua Co., N. Y., Oct. 10, 1876.—"I commenced with 9 swarms; have realized 1120 lbs. surplus and 21 new swarms. They have gathered ample stores for winter from buckwheat and smartweed. Have wintered bees successfully 4 years in chaff hives outdoors." W. H. S. GROUT.

Tompkins Co., N. Y., Oct. 12, 1876.—"It has been a very poor honey season here, and bees have worked very little in boxes. I wintered 15 swarms, increased to 25, and took 410 lbs extracted and 74 of box honey. I use the Langstroth hive and have black bees. We have but little good honey in this vicinity. What we have is gathered mostly in the fall from bone-set and buckwheat." JOSEPH SINTON.

Jefferson, Wis., Oct. 15, 1876.—"My method of wintering is the same as that pursued by the late Adam Grimm, of this place. Where I use my straw cover, I give only a little ventilation on strong stocks and none for weak ones. I use strips between hives. My colonies are in a poor condition to winter; several are queenless, and quite a number have not enough stores to winter on—none have any to spare. I found one hive starving to-day. It was a swarm that I put in a hive full of comb, in basswood time. Even hives not disturbed since spring have not honey enough to winter on. I never had as poor a season as the past has been, and I shall be obliged to let my bees out next season where there are not as many bees kept as there are near here. All field crops here have failed, more or less. I hope for a better season next year." WM. WOLFF.

Lima, O., Oct. 17, 1876.—"I keep bees for pleasure, not for profit, but from 24 colonies I have this season taken 400 lbs. of box honey besides 75 gallons of extracted." J. E. RICHIE.

Butler Co., Pa., Oct. 6, 1876.—"As the late Adam Grimm was one of the most successful bee-keepers in wintering, can you give us a description of his manner of packing and ventilating for wintering in bee-house or cellar? I believe much depends on the manner of preparing colonies for wintering. I have put mine in the cellar and bee-house for the past five seasons, and have lost not over two per cent. I have packed the cap full of hay and ventilate in the cap." JACOB PATTERSON.

[It was Mr. Grimm's custom to remove the cover from the hives, slide the honey-board ⅛ of an inch forward, or put ⅛ of an inch splits on the rear end, under it, and then pile the hives 4 to 6 high in rows, leaving space to pass between them. His cellar was ventilated by two pipes 4 to 6 inches in diameter—one near the bottom and the other near the top of the cellar.—ED.]

☞ The Rev. W. F. Clarke expects to be at the Centennial Meeting.

☞ The North Missouri B. K. Association will meet in Mexico, Mo., Nov. 9, 1876. Communications and apiarian supplies as samples will be thankfully received. P. P. COLLIER.

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When writing for The American Bee Journal it is just as well to write on both sides of the sheet of paper and will save postage. It is usual to ask to have it written only on one side for a daily or weekly, but for a monthly it makes no difference, as we do not "cut up" any article for the printers. We would ask that all items of business, etc., be written on a separate sheet, however, as we file all such for reference.

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